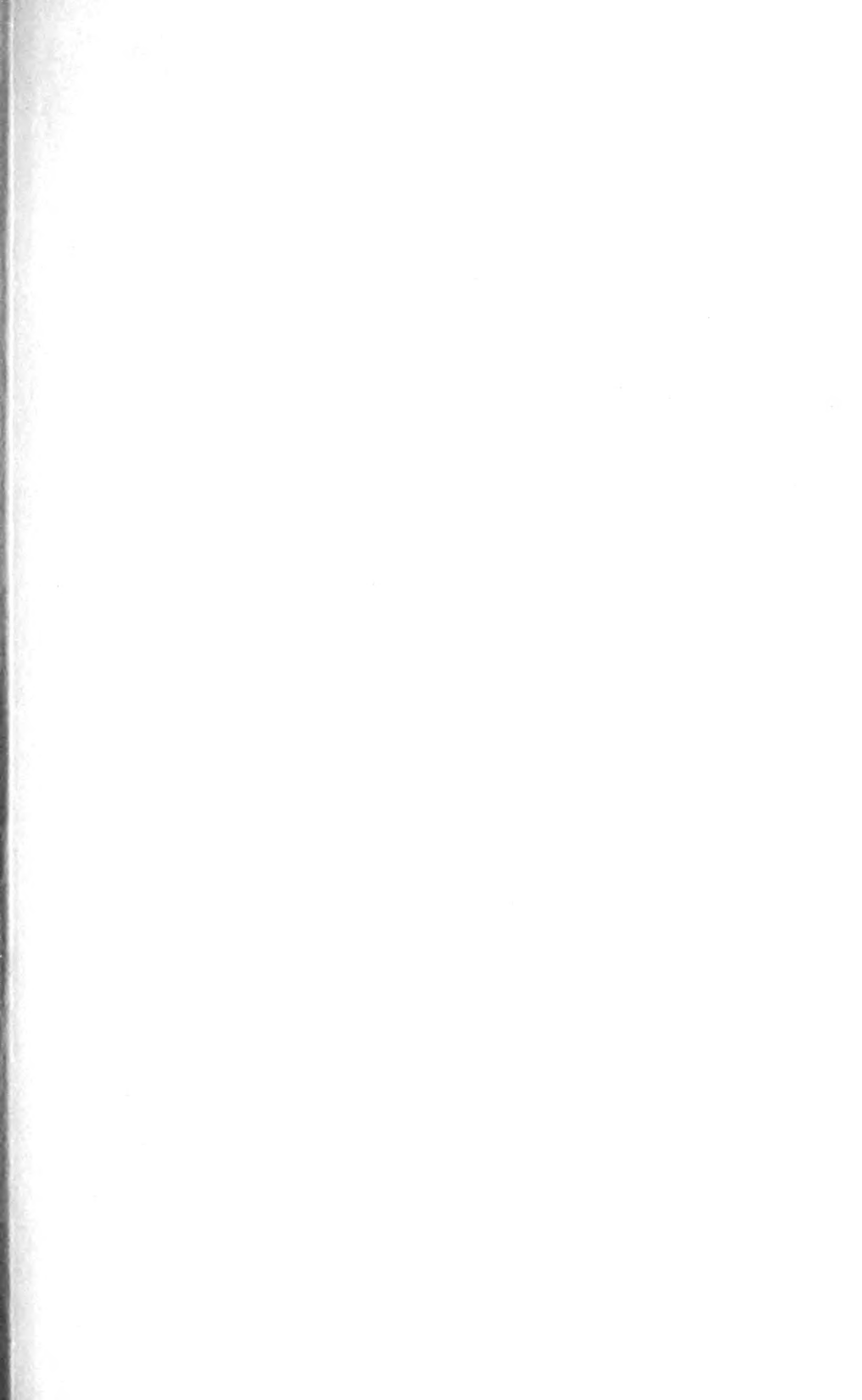


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PSYCHOLOGY AND SCIENTIFIC METHODS

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AND

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THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

THE VICE OF MODERN PHILOSOPHY

IT seems fair to say that in the present age the interest in philosophical problems is more widespread and more intense than for a long time past. Even in the palmiest days of the Grecian culture, or of idealism in the German universities, the numbers engaged—whether of individuals or schools—were presumably not so great as now, nor was the mutual clearing-up of ideas which discussion affords so eagerly sought. And certainly never was controversy so keen. We have to-day at least four clear-cut reforms—pragmatism, intuitionism, radical empiricism, and new realism,—besides the older systems of absolutism, and idealism, voluntaristic or rationalistic. Contemporaneous with these lives on the hoary figure of Thomism, the most massive and enduring system known to history; and it displays a by no means diminished vitality. Was ever a time blessed (or cursed) with so many currents and counter-currents? For all these refute one another's main theses, agreeing perhaps only in the one point that they seek knowledge. Philosophy to-day has the appearance of a rising tide, with its eddies, rapids, backwaters; and one who rides upon the stream can not easily find the direction in which he should steer his bark. Each current seizes it in turn, impelling it in a different direction; the waters are a true maelstrom from which no issue readily greets the eye.

In view of such a situation it seems advisable to draw back from the clash of systems, and to recall a few truisms in regard to the nature of philosophy's problem. For it may be that (to vary the metaphor) the dust of combat has somewhat obscured that problem's proper sense. All unnoticed, perhaps the battleground has gradually shifted from the fertile country where conquest is profitable to the desert where the victor can claim no spoils. Such is the besetting danger of controversy. And there seems to be reason for suspecting that recent philosophy has to a large extent succumbed to the peril. Indeed, we believe that the principal systems which are to-day offered to the seeker after knowledge are not, on the whole, fertile of results

which satisfy the native philosophic instinct. The victory of any of them would be more or less barren. Is so grave an indictment too extreme to deserve a hearing? At any rate, it is only a shade worse than the customary practise of disproving all the systems but one. And of course we do not mean that no system provides *any* true satisfaction to the inquiring mind. Many undoubtedly do; perhaps all. Speaking generally, however, the cardinal doctrines which the opponents love to refute are matters whose decision, no matter who had the right of it, would not quench, nor suggest a means of quenching, the philosophic thirst.

What then is the true problem, and in what way do the present systems lose sight of it? Obviously, the first question must be answered before we can intelligently attack the second. Now we conceive that the right way to ascertain what is the true problem of philosophy is to ask, what do men want, that they philosophize? What need does philosophy attempt to meet? To learn this, it seems best to begin with some fundamental, if trite, statements concerning human needs in general. For if philosophy—like every other human activity—arises in response to a specific need, its significance can not be properly estimated until the place of that need with respect to the rest is known.

What, then, are the needs of men? Certainly their number is enormous. We might perhaps summarize them: health, moderate wealth, peace, social organization, knowledge, beauty. Yet such a list would not, even if the details were filled in, be adequate to the situation. There is another need also, which we proceed to specify. Some men do not need the above goods very much; for they have them. Many do, however; and in some cases desperately. And while this is so, no man of intelligence and sympathy, however fortunate himself, can be quite contented or idle. There presses upon him a problem; the great problem of satisfying, or helping to satisfy, the above needs for humanity in general. In addition, then, to the particular wants which each man feels on his own account, there is one great need which may be called the general human problem. It is thrust upon every man alike, and is, for human beings, the absolute problem; for it includes in itself every particular need of everyone. However vague and general it is, it is commanding; indeed, in imperiousness it has no equal. It is the initial, all-embracing task, in respect to which all other tasks must be rated. How may any man cope with this task? Were it no more than such a conglomerate as has been described, the attempt would be hopeless. But a little scrutiny will show that it is capable of articulation, developing into an orderly precession of problems which embody the fundamental

human needs; and among these, at the proper juncture, will appear philosophy.

All the particular needs comprised in the general problem may be grouped under two heads, or classes of good, viz., knowledge and practical well-being; giving us the joys of contemplation and those of action or passion. Though both sorts of good may reside in one and the same object, or one kind may be the means to the other, they are distinct ends, and often are pursued in comparative independence of each other. The physicist does not usually seek to be a social reformer, nor the merchant prince a biologist. Yet, however different they are, the value of each end would be enriched by addition of the other. It is to the scientist good in itself to know the properties of electricity; but the utility of the knowledge in no way detracts from, but rather enhances, the measure of its worth. The organization of a democratic commonwealth is a vast practical achievement; but it loses nothing of excellence if it is found to be a structure of great artistic merit. No intolerance is demanded by the pursuit of either sort of good. However much of exclusive concentration each may for a time demand of the pursuer, their duality is not in the end a hostility. Each demands supplementation, so far as possible, by the other. The initial need, in dividing, remains integral; in fact, we shall soon see that division is the very means of retaining its integrity through the transformation it must undergo.

For this division of the problem is no bare formality; it has important consequences. Knowledge and practical welfare, supplementary though they are, are not quite on the same level. They are not coordinate; in the technical language of logic, their relation is an asymmetrical one. In the order of time, practise comes first; and this is true both of the race and of the individual. The new-born human beings acts instinctively, thinking and planning but little or not at all. And in history thought did not appear, as a noticeable or predominant aim for its own sake, until after a period of successful struggle for material goods. To be sure, there was always with the adult—perhaps even with the new-born—some thought, some trace of a contemplative attitude, and with every thought there is, if you will, some action; but the difference of emphasis in the different periods is too marked to be neglected. Whenever, indeed, we shall speak of knowledge or of practise, we must be understood to mean not either utterly without the other, but a condition of life in which one or the other largely predominates. Now as, in time, practise in the main precedes contemplation, so in order of value the latter must be assigned the priority. Does this statement provoke a denial, on the ground that two so disparate values can not well be compared? Or again, because both being necessary to life, neither is more valu-

able than the other? Let us then remember that when a man chooses one out of several callings, he compares, and compares intelligently, the most dissimilar values. Perhaps there are no two ideals, of however divergent character, that have not been at some time and by some one, intelligently compared. Nor do we customarily refuse to consider two equally necessary functions as of unequal value. The brain is generally regarded as having more value than the liver, though both are necessary to life. But even if such comparisons were not permissible, we do, nevertheless, find, in the case of knowledge and practical well-being, a rational manner of adjudging their claims, in the fact that we can compare the results to which they lead. The great apparent progress that man has made, has been accomplished largely by the application of science; and the theoretical side here came first. When it is a question of progress, a high degree of satisfaction of the needs of thought is prerequisite; practical comfort, beyond a certain elementary amount, is no *conditio sine qua non*. The gratification of intellectual wants does not suffice of itself to ameliorate the lot of man, beyond a certain degree; but it achieves something toward that end, and it makes possible a practical application which is its fitting crown. On the other hand, practical well-being by itself degenerates into animal content or stupidity. It is not that its measure of satisfaction is less than that which comes from pure intellectual cultivation. Many would say so, but we need not insist upon the point. It is rather that it contains in itself no stimulus to advance. To know is to see the desirability of practise as well as theory; to be well-off is not necessarily to see any thing beyond the immediate satisfactions. Knowledge thus has a twofold value as against practise's onefold. It provides for, and urges to, if it does not ensure, another value besides its own. We should then conclude that if we are forced to choose between a life devoted to knowledge and one devoted to more directly practical pursuits, the former is, other things being equal, the better choice. However incomplete in view of the whole human problem it may be, it gives a greater prospect for the future. It comes nearer to being that best, all-inclusive purpose of securing both the classes of good. Of the two needs into which the general human problem is divided, it is the higher, for it tends to include both.

And no doubt each of us must make a choice. Limitation of time and energy, even in the most favorable cases, prevents our assuming the whole task. Now some can choose with relative freedom, and on objective grounds, while others can not choose freely. The majority of men are so constrained by lack of opportunity in more than one or two directions, by the immediate necessity of earning a livelihood, or by strong temperamental bent, that they are unable to

take the objective attitude. But some, by grace of fortune, can do so; and upon these the choice of the larger problem, the advance of knowledge, seems incumbent. It is of course obvious that such a choice can not be quite exclusive; the purest of mathematicians must to some degree attend to his practical affairs. Nevertheless, one may make the cognitive end predominate over the practical to an extraordinary degree, without serious damage; and on the whole, when this is possible, it seems the nearest duty. The absolute need, the general human problem, at first a vague conglomerate, has thus developed into the need of knowledge, both for its own sake and for the sake of utility; and this completes the first step in the development whereby the initial problem gives rise to the fundamental human tasks.

But another step is necessary. "Knowledge" and "practical welfare" are ambiguous terms; each of them is of two kinds. Of practical welfare, we may distinguish the more immediate and the more remote. Such are, for instance, the well-being of the so-called "practical" man who is satisfied to obtain the material and social comforts of life for himself and his family, and that of the statesman who plans a future which he and his may scarcely live to enjoy. No doubt a union of these is the ideal. But here, as above, human limitations impose a choice; for every one who seeks practical welfare in preference to knowledge, the one or the other of these must be the predominant aim. And if one must choose, then the more remote ends are, on the whole, the more desirable ones. For the contrast is roughly that between far-sightedness and the lack of it. The greater practical benefactors of humanity, the moral and religious leaders who have held the passions of men in check, have in their wisdom preferred the future good to the present advantage. The relation between these two kinds of well-being is then an asymmetrical one, analogous to that between knowledge and practise. While each condition is admirable, and, if circumstances did but permit, even mandatory, they are not equally weighted motives; the more remote inclines the scale. But here, as in the preceding choice, no complete exclusion is possible; it is a matter of predominance.

This serves to introduce to us a similar partition within the sphere of knowledge. The field of intellectual pursuits comprises two divisions, one of which contains the special branches which study particular parts or aspects of the world, while the other includes that discipline which would group those branches together, correlate them, in order to know if there be a plan of the universe as a whole. The former division is that of the sciences, viz., biology, physics, psychology, economics, etc.; the latter can have no other name but philosophy. The former furnishes the more easily accessible knowledge, the latter the larger, less easily verifiable information. The former is more

capable of being put at once to advantageous use, the latter can be applied on the practical side perhaps only to aims of the longest range and the widest bearings. And if mankind were not sophisticated to-day by a sense of the difficulty of the latter problem, the errors and often the intolerance of its past devotees, it would not hesitate to acknowledge that the problem of philosophy is the higher in value. The very nature of the problem dictates this conclusion. If the universe were built upon some well-defined scheme, if there were principles which, under suitable cooperation, we could count upon to retrieve us from our too frequent discomfiture—then it would be of supreme utility to know that scheme and those principles. Or, if there be no such planful structure and behavior, it is as desirable to know that fact; for then we may with the better right adopt the easier task of satisfying our immediate wants. But it is not alone in respect to practical application that philosophical knowledge seems higher than scientific. From the merely intellectual point of view, also, it assumes the greater value. It represents the consummation of a progress in which each science is a stage. It answers an instinctive question which no extent of knowledge in this or that particular science, or in all together, is adequate to answer; which no amount of positivism, dogmatism, or skepticism can long stifle. Man is so made that he gets the greater intellectual satisfaction from the broader view, as one loves to ascend a tower in order to command a wider horizon. Of the two needs, then, into which the cognitive need divides, the philosophic is the more inclusive and the higher.

Now, once more, a choice must be made. Though neither interest need be excluded, one must predominate. From what has been said it follows that in view of the great human problem, philosophical rather than scientific knowledge must be the chosen end. Its pursuit approximates more nearly to that problem. As the far-reaching practical aims are higher than the immediate, so is philosophy, to the contemplative side of man, more satisfactory than science. But it is also higher than the farthest-reaching practical aims. Philosophy, if successful in its endeavor, is knowledge, and knowledge, unlike practise, ministers to more than its own instinct. It naturally succors the aims of practical well-being. Were this not the case, philosophy might indeed be *preferred* to the pursuit of such welfare, but it would not be objectively a higher aim. It is the self-transcending quality of knowledge and contemplation, their greater inclusiveness, to which the superlative worth of philosophy is due. And with this we have completed the second, and for our present purpose final, step in the development of the initial problem.

What then is the need to which philosophy is the response, and what is its place among human needs? Both are to be discovered

in the fact that of all human wants there is one and only one which, if satisfied, goes far toward satisfying the rest; that is, the need of a knowledge of the character, on broadest lines, of our universe. Such a knowledge, gratifying most fully the contemplative instinct, tends also to promote the deeper sort of gratification of the other great instinct, that for practical welfare. This end is the most inclusive single end we know. It is, in fact, but the original problem, the great human problem from which we started; but it is that problem made more precise and accessible to human effort. Or better, it is the closest approximation thereto which any one who must make a choice can adopt. And consequently its place among human problems and needs is very high, even the highest. It is no subjective whim, but an imperious and universal requirement—where such a choice is practically possible.

This being, in general terms, our conception of the true philosophical problem, we may pass to our second question: In what way do present systems fall short of it? To obtain the answer, we point to certain consequences of our view. Naïve though the view itself is, its consequences are decidedly important. If the unique significance of philosophy lies in its inclusiveness, its approximation to the one dominating problem of man, that significance is lost when the inclusiveness is set aside. In such an eventuality, philosophy meets no end but individual preference, nor has it any general human value. Now this may conceivably happen in either of two ways. Firstly, a principle might be discovered to hold of the universe as a whole, which by its very nature could not, in any time, place, or circumstance be turned to practical account. Some would deny that there are such principles, but we shall soon reply by specifying a few of them. At present we say only that it is a possible supposition. Secondly, a principle might be discovered which could not, in any time, place, or circumstance, help to account for the specific character of any particular fact known to science. This possibility may also be denied; we shall meet the denial in the same way as above. Both of these principles would fail of being genuinely philosophical. They might perfectly well be true, and in the widest and deepest manner. They would then satisfy the contemplative instinct. Nobody would, so far, have the right to refute them, or to blame their advocates for announcing them. If a man loves contemplation, he loves it, and unless by contemplating he injures some one, it is nonsense to impose upon him *ab extra* a moral law which forbids it. But this sort of knowledge does not minister to the universal need: it rather works against it. This is not because the discoverer is personally indifferent to considerations of utility, but because the truth in question by hypothesis precludes them. The philosopher may be permitted, while he is investi-

gating, to be indifferent to applications. Indeed, we should insist that only so can he do good work. But to be indifferent is not to be hostile; it is not to seek a principle which *can* have no application. The two are as distinct as doubt and disbelief. The kind of principle which *excludes* the satisfaction of other than contemplative needs can not, then, rightly be termed a philosophical principle; for the unique significance of philosophy lies in that it alone of all disciplines tries to meet the general problem of humanity.

This is perhaps clear with regard to practical applications; but does it hold of the second case noted above, where a principle is announced which can not account for any of the specific characters of things? Why is that not genuinely philosophical? We answer: because it also fails to meet that same general problem. The superior value of philosophy over science lies in the fact that it is broader than any science; but it is not broader if it leaves out what the sciences contain. And if it does not account for the detail of fact, either by incorporating the sciences directly or by grounding their particular laws more deeply, it does leave out the main body of their content. A philosophy composed of such principles is abstract, no matter how much it extols the concrete in its definition of reality. The choice between it and science is then a subjective matter, to be decided by temperament or opportunity. Whoever chooses such a philosophy has simply turned his back upon a large part of the general human need. Nor has he done this in order later to face about with added insight into the living detail of reality; the order of knowledge he attains gives no such insight. The great human need includes a desire to understand details as well as wholes; and an abstraction, however large which can not aid us to know more than the abstract, has no prerogative over any other truth, however petty. The fundamental meaning of philosophy is here lost; its generality becomes another kind of particularity. Mere form is no better than mere matter.

It is easy to object that we have set up an arbitrary view of philosophy. Many would refuse to define it in our all-inclusive fashion, saying that they are not interested in that sort of knowledge. Here undoubtedly one may make his choice. All that we have attempted to show is that if one chooses the narrower view he is taking the alternative that is, impersonally considered, not the valuable one: He is dodging the problem which the present condition of humanity thrusts upon every one who has leisure to reflect. He is degrading philosophy from its position of supreme dignity, as the one response to that problem, to the status of an eccentric whim. It may interest him to do so; it may even interest the majority of professional philosophers; nevertheless, it is not what human nature insistently craves,

and it is not the kind of thing that will in the end be edifying to the understanding, or will survive the buffets of natural selection.

Now we contend that the "schools" of present-day philosophy do for the most part announce just such intellectually and practically barren principles as we have described. Not *all* their doctrines are such, of course; but the ones that are noticed, fought over, defended, and attacked most ardently, are in the main quite sterile. Every system has what James would have called its thin and its thick parts, but the thin parts almost exclusively concern the modern protagonist. Consider, for instance, voluntaristic idealism. It announces that reality is a certain sort of will-object. Yet no idealist intends to explain by this how it comes that reality gravitates, or is electrified, or is divided into organic and inorganic, multiplies by sexual intercourse, etc. Nor does he tell us how man can, for this doctrine, adjust himself the better to his environment. "No," he says. "We leave these details to science and to life." Precisely so. Yet a philosophy that does not illuminate science or life makes itself by its aloofness into a purely formal affair. Its devotees must sooner or later become specialists in the bad sense; their high mission to mankind has failed, for they have forgotten the great problem of humanity. To be sure, there is another part of voluntaristic idealism; the thicker side. This is where it deduces from its concept of the will-object the various categories used by science and practise. Here it approaches nearer to the definiteness of the real world: all honor to it for the attempt! Yet how many critics of idealism have the patience to follow the detail of the deductions given, say, by Royce and Münsterberg? Such endeavors to come closer to reality are scarcely discussed. And in any case, we must confess, the categories deduced are indifferent to the content of the objects to which they apply. They do not grow out of that content, explain it, or apply to its detail, but are, as it were, let down miraculously from heaven to keep the chaotic mass in order. Even here there is no true connection with the specific reality. And of rationalistic idealism, much the same is to be said. When reality is defined as a problem set to the *Denkthätigkeit*, what has that to do with the facts of radiation entropy, or wave-motion? What rationalist to-day dares descend into the particulars of the concrete as Hegel once did? And on the other hand, what critic of rationalism follows the painstaking deductions of Natorp in his attempts to come nearer to reality in the scientific categories? The thin is discussed and rejected, when its truth would be indifferent; the thicker is overlooked.

But the idealists are not the only sinners. The realists, in spite of their professed empiricism, have shown themselves no less barren. Having asserted the independence of external reality, they have told

us nothing of its structure and behavior. One does not see why we are better off for knowing that everything is objective, than if we knew everything to be subjective. It tells us, so far, not one jot about the reason why events are causal, or temporal, or spatial, or numerable, or how it comes that some things have life and others do not—still less how the objectivity of everything enables us to conduct our lives more properly. From idealists, indeed, we had attempts, though only formal ones, to account for the relations governing the real world; from realists, who profess an interest in reality, we have had no inkling of such an endeavor. And in saying this we are not unmindful of the abstract analyses by certain realists of the categories of exact science; for these analyses pay scant regard to the concrete material wherein those categories are exemplified. Pragmatism, too, must come under the same indictment. With its relatively novel view of truth, it seemed to offer a means of escaping some of the above futile issues; yet the pragmatists have only continued to refute the others and to demonstrate that truth is what they say it is. But it is not so much a definition of truth, as a few useful truths, that pragmatists ought by their own principles to give us. We do not deny that they can do this; but it appears that they are not interested in doing so. And, at best, one may doubt that the formula "stimulus-hypothesis-reaction" will be very fertile to explain the rich manifold of the external world. In regard to the Bergsonian system, most of the discussions confine themselves to its criticism of intellectualism. But what avails it to dispute whether reality is intelligible or not, when no one tries to understand its concrete detail? The thicker portion of the system, which concerns itself with an explanation of life's evolution, based upon biological and psychological evidence, is in professional circles not much noticed. Of absolute idealism it is often said that it is an abstract doctrine, explaining nothing in particular just because its formula fits everything so easily. This is no attack upon its truth, but upon its importance. Mr. Bradley frankly recognizes the impossibility of accounting for the details of reality or furnishing a usable map of the universe, but he regards such a task as quite outside philosophy. "The way of philosophy . . . is not the way of life or of common opinion, and to commit one's self to such a principle may be said to depend upon choice."¹ We agree that it is a matter of choice, but we deprecate the choice which has been made.

Let the above suffice for examples; the reader may continue the indictment for himself. To describe the situation: it is as if one, consumed by thirst, were offered an empty goblet, elaborately carved and of exquisite workmanship. He may, if his thirst permit, contemplate the goblet, and argue with friends over its proper description; as the

¹ "Appearance and Reality," 1st ed., page 501.

dispute waxes hotter he may even forget his thirst. This way, we conceive, has modern philosophy gone. But whatever account of the goblet prevails, thirst is unquenched and will return. The human race has need of a knowledge which philosophy alone is capable of giving it, but which it has not even attempted—during most of the modern period—to furnish. And one must suspect that a main reason why philosophy is still so contemptuously regarded even by the educated is just this dearth of results that can be turned either to practical or to intellectual account.

But let not the accusation be too sweeping. A few bright spots appear in the darkness. The larger part of the Bergsonian system, whatever be its errors, is devoted to offering a plan which would explain much of the concrete manifestation of life, and a method of regeneration for man by cultivation of intuition rather than death-seeking intellect. It is capable of utilization; it aids syndicalism, it inspires psychical research. And consequently, this system has stirred men as no other recent system has done. To a less extent, certain of James's doctrines have had concrete bearings; e. g., that of the growing universe whose future depends upon our contingent choices. But the system of Thomism is higher than any other by head and shoulders in its concreteness. Whether it is correct or not, it at least aims to show forth a very definite plan of the universe, worked out in the greatest detail during several centuries, offering man a means of salvation and grounding the categories which common sense employs for the guidance of life on this earth. And its influence, in point of numbers as well as of duration, has not been surpassed. Yet to what extent are these specific doctrines discussed in current philosophical journals?

Modern philosophy may be said almost to have lost the sense of reality. It matters not that it uses the word, even capitalizing it; it concerns itself little with the thing. Idealists tell us, with a kind of ascetic joy, that their doctrine has no consequences for the particular exigencies of life; but such deprivation is nothing to be proud of. Realists and pragmatists declare that they are interested in the real world; but they remain under the influence of the idealistic foe, since they attack no problems save those of consciousness, error, secondary qualities, etc. If they excuse themselves by the plea that they must first demolish the idealist in his lair, one can only wonder; for that demolition was supposed to be finished. Why sit on the corpse and repeatedly plunge in the knife? Why not rise and investigate? The problem of the nature of mind is, to be sure, a genuine philosophical problem, provided one seeks to ground the specific behavior which minds display; but (excepting, we must admit, some of the work of Montague and Holt) it is generally studied only with a view to estab-

lishing realism or idealism. May we not, in fact, fairly challenge any one to name a single well-known doctrine of recent philosophy—except those above indicated—whose acceptance or rejection would make the slightest difference to anything but the formula for reality *überhaupt*?

If there be any sympathetic reader, he might here well ask: "What would you have us do?" The answer is ready, and has been so since Aristotle. We know some of the principal categories under which reality is manifested. Such are life, matter, mind, space, causation, probability, etc. Everything that is real is a case of one or more of these. Now we can ascertain the structure and behavior of the universe only when we know what these categories mean, how they work and combine to form the mosaic of the whole. But it is of no use to study them *in abstracto*, as has usually been done; since they do not work *in abstracto*. They must be examined in connection with the details to which they apply. We desire, for instance, a definition of mind which will tell us why minds have memory, feeling, will, how far mind is able or helpless before nature's courses, how minds came into being, and whether they endure after bodily death. We want a definition of causation which will show how it comes that a blow given a body will *move* that body rather than turn it blue; whether there is unbreakable necessity in the world, and a personal first cause, etc. In such a spirit did Aristotle and Hegel undertake their philosophical inquiries; shall the errors they inevitably made prevent us from profiting by their successes and continuing their labors? What we need, in sum, is information which will enable us to form a notion of the scheme of the universe, its make-up and functioning; a notion that will illuminate our knowledge of the parts and our conduct of life. The lack of a metaphysical system in this sense is nothing to boast of; it is a matter for shame. In spite of our frequent pretense at unconcern, we really want it more than we want anything else. And to vouchsafe something toward such a system can alone save philosophy from remaining what in very large measure it has become to-day, a narrow and unfruitful eccentricity.

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THE PRINCIPLE OF INTERNATIONAL ETHICS¹

IN the course of moral evolution attention has recently turned to the ethics of international life. International morality forms in fact the latest stage of more than a century of ethical thinking. As late as the beginning of the nineteenth century, morals were considered primarily from an individual point of view. Toward the mid-century the rise of sociological science and the pressure of the problems of society favored the interpretation of conduct in terms of social function. As the century waned toward that in which we live, the relations of nation to nation forced themselves upon the conscience of the civilized world. The principal subjects considered have been peace and war. The maintenance of friendship among the nations, the prevention or the mitigation of warfare, the duties and the rights of neutrals, the localization of hostilities and their speedy termination—questions like these have in recent years engaged attention more fully and more hopefully than ever before. In addition the questions of international trade have claimed the notice of the moralist, even when they have not been mingled with the questions of peace and war. "The open door," "zones of influence," the collection of debts by force, the right to fish, or hunt, or mine, in alien waters or foreign territory, have added the problems of commercial life to the ancient and perennial sources of international friction. War and trade alike are involved in a third set of international conditions—the relations of the governing to dependent and backward peoples. Britain has India and South Africa. France is colonizing the desert. Since the war with Spain the United States has assumed new responsibilities in both hemispheres. In the far east, China, in the near east, Persia, Turkey, and the Balkan States, on the Mediterranean, Morocco and Tripoli test the conscience as well as the diplomacy of Christendom.

The subjects of discussion, therefore, have been many and varied. Nevertheless, high authorities contend that international morals rest on a principle of great simplicity. These thinkers assert that the morality of nations is identical with the ethics of individual life. The same rules are held to determine the intercourse of nations as those which govern the relations of individual men. In the advocacy of this conclusion American statesmen have taken a foremost part. It has been commended by almost all our later presidents; while Mr. Roosevelt has made of it a political axiom, both in his state-papers and in unofficial utterances since he left the presidential chair. His message to Congress, December 8, 1908, asserted: "This nation's for-

¹ This paper represents, in part, the Stuckenbergl lecture before Pennsylvania College, Gettysburg, Pa., February 24, 1914.

eign policy is based upon the theory that right must be done between nations precisely as between individuals, and in our actions for the last ten years we have in this matter proved our faith by our deeds. We have behaved, and are behaving, toward other nations as in private life an honorable man would behave toward his fellows." And the Ossawatomic address, August, 1910, included a characteristic affirmation of the doctrine at large: "Justice and fair dealing among nations rest on principles identical with those which control justice and fair dealing among the individuals of which nations are composed, with the vital exception that each nation must do its own part in international police work. . . . In all this, it is peculiarly the duty of the United States to set a good example."

The exception noted by Mr. Roosevelt may lead to differences of opinion. But no one can mistake the attractiveness of the general principle. It seems so simple a method of settling serious problems! And it possesses an alluring moral charm. Men of good-will are strongly moved by the idea that the conduct of the nations should be guided by the maxims which they follow in their personal lives. Are not justice and righteousness the same for nations as for individuals? Can it make a difference—a moral difference—that the incidence of laws is now upon a community, and now on single men? Should not conscience speak as swift and clear when the acts of nations are before it as when it passes judgment upon personal deeds? Ought not reward or punishment to follow as closely on the judgment rendered? Must not responsibility be appraised by equal measure in the double case? To doubt the answer seems a betrayal of morality—to dispute the principle, an indication of imperfect ethical temper.

Closer examination, however, shows the matter not so simple. The spirit and the form of international morals undoubtedly should parallel those of individual ethics; the content of international morals involves problems of a broader scope. Some of these problems are temporary in character or depend upon conditions which in time will disappear. The practise of international morality is embarrassed by the inequalities of national development in the point of ethics; by the imperfect evolution, even among enlightened nations, of the moral sense for international affairs; by the absence of a comprehensive code of international law; by the lack, till recent years, of international tribunals, not to speak of the defective jurisdiction of the few which we now possess; by the difficulty, which Mr. Roosevelt mentions, of enforcing the principles of right between nations, or of providing adequate sanctions for the verdicts of these courts. The individual man in civilized communities is not only restrained by the collective moral judgment in addition to his own, and by the sanctions of the law; his rights are safeguarded as well as those of his fellows,

and they must respect his possessions and his privilege, subject, in case they violate them, to the same pains and penalties which aggression on his part would entail. With nations the case is different. Savage peoples respect no rule but physical force. "Civilized" nations there are ready to exert the force which savages expect or to turn their sharpened weapons against their neighbors nearer home. Conceptions of international obligation are imperfect; established legal principles more fragmentary even than these ethical ideas. The world has hailed with legitimate delight the provisions lately made for the settlement of international disputes by forms of law. But the inchoate incompleteness of the institutions which we have welcomed—and their failure in the present crisis—show the backwardness of moral evolution in its international phase.

Further, these facts suggest the doubt whether all the difficulties noted are of a strictly temporary kind. And this brings up another fundamental question. Can the analogy between individuals and nations ever be made complete? These differ in permanent and essential characteristics. Will they not differ also in matters of ethical relationship and the conduct to which relations among the nations give rise? The individual is a personal agent—in the last analysis, the only personal agent whom ethics directly knows. A nation is a collective body, which can be called a person only by way of legal artifice. The units, therefore, with which international ethics deals are collective units. The relations on which the conscience of the nations passes judgment are not relations among individuals, nor even relations between society and the persons of whom it is composed. If the phrase is permissible, they may be termed collective relations—relations of nation to nation, of race to race, of one political community to another throughout the world.

Hence follow differences of obligation. At least, the question may be raised whether such is not the case. The broad underlying principles of morality, indeed, will not vary. And the nation which violates these does so at its risk and to its shame. But among the manifold exigencies of conduct cases of application will arise certain to test ethical principles to the full. In these the state, through its executive, will ask itself whether it may not act, whether it is not bound to act, in ways not open to individual men. An affirmative answer is suggested by the analogy of groups of lower order than the political body. In behalf of wife and children, the head of a household may have duties laid upon him which, if he were a detached individual, might appear in a different light. As husband and father, he lawfully may, nay, in circumstances he must, insist upon rights, safeguard interests in ways and to degrees which he would avoid, if he were free from family ties. For himself he might well

be less keen in business competition, less prompt to repel aggression, than he is called upon to be in furtherance of the family's welfare. Is it not the same with the welfare of the community? When this is in peril, does it not become the duty of the government to adopt every measure for its preservation which is at all allowable? Even here the state may not overstep the limits of the few fundamental axioms of morals. But short of these there are wide marginal regions in which obligation may vary with the agents concerned.

An example may be found—though it is suggested with reluctance—in international trade. The problem here is complex and beset with moral dangers. Than the crimes of trade, abetted by the nations, recent history has seen few things worse, except the occasional misuse of missionary enterprise to further political aims. But in the end the attitude of nations with respect to the commerce of their citizens includes a peculiar factor flowing from the nature of the state. The questions of trade may concern the prosperity of an entire people or even its economic existence. Therefore they give rise to ends fit for governmental action or which demand this. Thus the issue rises to a level higher than lust for private gain. It becomes a national concern. And the measures to be adopted can not reasonably be tried by standards which ignore the collective nature of the parties to the case.

These questions gain emphasis from a second characteristic of the body politic, the representative element which is involved in national life. This, indeed, is presupposed by the collective factor which has been considered. The political body is a community—its agents are individuals or smaller groups of individual men. The executive, therefore, functions in a representative capacity and his representative status conditions the character of his acts. If, for instance, he makes war from motives of vanity or personal spleen, he is chargeable with wholesale murder. But if he leads the nation into conflict in defense of its existence, its rights, or its collective honor—the burden of care may weigh down his days, but by the judgment of mankind he is absolved from responsibility for the slaughter. Representative character, moreover, belongs to the citizens as well as to the ruler. Not only are they the units of which the state is composed—there devolves upon them a degree of representation which they can not reject, even if they would. As members of the body politic they are bearers of its sovereignty in their measure, invested with its privileges, sharers in its obligations. Somewhat even of these qualities may pass to inanimate things. The flag, the ship cease to be bunting, wood and iron; they become symbols, at times they become pledges of the national life. In these conditions peculiar duties take their origin. The state must defend its flag. It must protect its

citizens in foreign lands. For sovereignty and citizenship are of the essence of its life.

At this point the discussion reaches the debatable ground of national honor. Here the moral evolution of the future must eventually decide. From most arbitration treaties, as those of The Hague, questions of sovereignty and national dignity are omitted. In certain later agreements, as that between the United States and England which Mr. Taft negotiated, but which the Senate disapproved, these issues are included with the rest. Is the world then to witness an evolution of international conduct like that which has gone on in individual life? In the earlier modern centuries all gentlemen carried swords. In the streets they cut down ruffians who annoyed them. Their own disputes they settled by formal combat. Now among enlightened peoples the duello is decadent, even where it has not disappeared. The gentleman of to-day disdains personal affronts. It is of his honor not to notice insults. Attacks which go beyond this limit he defers to the attention of the law. And so one fain would hope that the future will bring a like development of national intercourse.

Nevertheless, the matter is not so clear as some maintain. Even the modern gentleman at times must fight. He overlooks affronts to himself, but he will spring to the defense of an insulted woman. Interference with his own rights he ignores, unless it becomes acute; but occasions may arise when he will insist, if necessary insist by force, on the rights of a little child. And so, *a fortiori*, of the rights and duties of the state. Here the factors of political organization transfer the issue beyond the limits of individual concern. Once again the collective and representative nature of the state must be taken into account. There are earnest issues of national honor as well as trivial pretexts for war. International differences at times involve problems of national existence or of the rights without which nationality becomes an empty name. And when a government represents the nation in respect of these, it is a question whether it can submit the issue to the judgment of a court, or whether it must require a decision through the arbitrament of force. In either case, the outcome bears upon our present inquiry. Whether force is to continue to decide national controversies, or if law may happily be substituted for warfare, the cause at issue is of a peculiar kind. The contestants are not liberal persons. Their standing in the tribunal—of law and arms—is affected by their national quality. They appear through representatives. Their representatives plead in behalf of collective groups. By these characteristics their status is determined, and with their status are connected their rights and privileges. Nay, further, if this argument is just, their collective and representative character

conditions the standards to be applied. In regard to the few fundamental axioms of morality, it will make no difference whether the agent be an individual or a nation. And beyond this, in point of devotion to duty, in loyalty to principles established, in fidelity to obligations assumed, in respect for the rights of others, international ethics must be raised to the same level as ethics in their personal form. This is the goal toward which moral evolution tends, the ideal which the friends of progress consciously should make their own. But these conclusions concern the spirit or the form of morals, and only in part their content. On the side of content there are varying conditions which work out differences of result.

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REVIEWS AND ABSTRACTS OF LITERATURE

The Great Society: A Psychological Analysis. GRAHAM WALLAS. New York: The Macmillan Company. 1914. Pp. xii + 382.

This new volume by the author of "Human Nature in Politics" is one of numerous contemporary attempts to state, and contribute to the solution of, the problems which the large-scale organization of society has so precipitately thrust upon us. That extension of social scale seemed at first to promise an enormous betterment of human life; but as yet it is not fulfilling that promise. Misgivings are arising on every hand; the earlier naïve delight in progress is gone. We are realizing that in spite of our material successes there are "strangely few signs of that harmony of the whole being which constitutes happiness" (p. 7). The workers in our industrial régime have not found satisfaction for their inner needs. "The Great Society has resulted in a degree of discomfort and uncertainty which was unexpected by those who helped to make it. Its successes have rather been in the removal of certain specific causes of Unhappiness than in the production of positive Happiness" (p. 322). Moreover, "we find ourselves sometimes doubting, not only as to the future happiness of individuals in the Great Society, but as to the permanence of the Great Society itself" (p. 8). Many elements are threatening its cohesiveness; "the civilization which we have adopted so rapidly and with so little forethought may prove unable to secure either a harmonious life for its members or even its own stability" (p. 14). And so, "we feel that we must reconsider the basis of our organized life because, without reconsideration, we have no chance of controlling it" (p. 14). The basis of this life is fundamentally psychological; this book, then, "is written with the practical purpose of bringing the knowledge which has been accumulated by psychologists into touch with the actual problems of present civilized life" (p. 18). The opening chapter lays down this programme; the nine

chapters following discuss Instinct and Intelligence, Habit, Fear, The Psychology of the Crowd, Love and Hatred, etc.; the three final chapters aim to draw practical conclusions from these studies, and deal with the Organization, respectively, of Thought, Will, and Happiness.

In a word, then, the purpose of the book is, avowedly, to find in the study of social psychology guidance for increasing the happiness of man. It is neither a superficial panegyric upon the blessings of our civilization nor a rhetorical arraignment of evil conditions; it is a sensible and thoughtful inquiry. Nowhere brilliant or strikingly original, and offering no noteworthy contribution to our thought, it is clear, well-written, and sane in its advice. The author is well-read in ancient and modern history and abreast of the literature of his subject, full of illustrations from classic writers, and with all the modern catch-words at his pen's tip. There is little to take exception to, unless it be his tendency to long-windedness; the book (like many another!) might well have been compressed into half its bulk.

The doubt, however, persists in the reviewer's mind whether the method employed is, after all, as useful as the author expects it to be—whether these psychological discussions that make up the bulk of the book appreciably further the solution of the practical problems that confront us. Certainly the relevance of many of these discussions to the issues finally raised is not obvious; the whole middle part of the book seems more or less tangential to the practical studies suggested in the opening chapter and carried out in the closing chapters. There is no particular gospel that emerges; the suspicion recurs that instead of following a definite clue through these rambling observations and criticisms, the author is simply filling in with notes that he has collected on various matters interesting to him without himself finding in them any specific leading.

This need not be taken to mean that these chapters in social psychology were not worth writing. There is much acute observation of contemporary life in them, as well as some adequate, if rather familiar, criticism of out-worn theories. One of the best of the episodes is the polemic against the anti-intellectualism of the day—the tendency to put instinct above reason. "Intelligence is not a subordinate 'apparatus' set in action by Instinct; and the tendency so to treat it constitutes a real social danger" (p. ix). "Thought may be late in evolution, it may be deplorably weak in driving power, but without its guidance no man or organization can find a safe path amid the vast impersonal complexities of the universe as we have learnt to see it" (p. 45). "Does history show that Instinct or Reason is the better guide? It is easy to make out a strong case for Instinct . . . and yet, if Reason has slain its thousands, the acceptance of Instinct as evidence has slain its tens of thousands. . . . In the Great Society both the danger of Instinctive Inference and the comparative reliability of Reason yearly increase" (pp. 224-25). It is the "passion of thought" which is to be our salvation.

Another cogent passage is that which points out the danger of a smug conservatism. "The enlargement of scale which makes Habit increasingly necessary in the Great Society, increases also the necessity of criti-

cising and, from time to time, abandoning existing habits. . . . In every art the power and responsibility of the man who requires, and by ever new efforts retains, the habit of origination are now increasing" (pp. 81-82). This radicalism is surely carried too far, however, in the passage: "That crystallization of past habits and current opinions, which we call duty, does not exist [for the originator]. His business is to be perpetually and ever-freshly himself" (p. 83).

Especially timely is the author's criticism of the arguments for war. He admits that the instinct of pugnacity is native to man, and that "since acquired habits [of restraint] are not transmitted, each generation will be born with fighting instincts which must be kept under by Habit. But a Habit which ignores a strong instinct produces, as I have said, the condition of 'balked disposition,' and the character and nervous system of a man in that condition are apt to degenerate" (p. 172). "The fact does remain that a rather large proportion of the members of the Great Society honestly feel from time to time that they would be improved by a war, and are only restrained by the fear of 'the infinite'—by the strong probability that they may get more war than is necessary to improve their digestions" (p. 174). Various troubles are caused by this "balked disposition," parallel to those which Freud has pointed out in another sphere. So we must find, as James suggested, a "moral equivalent for war." That is, men's "powers must be exercised, and the secrets of their nature searched by a way of living more varied, more colored, more exhilarating than that which most of the present English governing class seems to contemplate in its legislative plans for improving the condition of the governed." For "we have now made our national houses so vast and complex that the custom of firing them in order to warm our souls is yearly becoming more dangerous and expensive, and the necessity of inventing some other nervous tonic more urgent" (p. 175).

But it is in the last three chapters that the discussion becomes predominantly practical; and it is here that we have the author's particular message, which is the necessity of a better organization of the collective thought and will. He examines the expedients by which the knowledge of the various members of society can be more effectively utilized to guide their common action. The State must provide a better "endowment of thought," "instead of trusting to the appearance of thought as a by-product" (p. 188). The conditions favorable to the growth of creative thought are examined in some detail. A description of a debate in the House of Commons (pp. 252 ff.) will be read with amusement and satisfaction by all who have had the privilege of listening to that august body in session. But indeed we had all "seen squirrels run round in a cage before." The author points out that it is not the politicians there who do the real thinking for the nation, but the high officials in the Whitehall offices. "From the point of view of economy in time and effort, the official organization is immeasurably superior to the Parliamentary" (p. 268). He holds that the size of deliberative assemblies should be reduced, and that more business should be left to committees; argument should be carried on in private and informal groups to a greater extent than at present. This chapter,

which is the best in the book, concludes with a consideration of the possibilities of organizing the non-official thought of the nation; working men and women should be formed into "effective dialectical groups." There is too much passive reading; oral discussion must be stimulated.

As to the organization of man's will, we are not only "without a collective plan," but "without the machinery which would make a collective plan possible" (p. 289). At present the social machinery is controlled mainly by the capitalists. The author discusses at some length the alternative proposals of socialists and syndicalists, and concludes: "Neither Individualism, nor Socialism, nor Syndicalism, afford by themselves a single sufficient basis for the Will-Organization of the Great Society. It may be that no satisfactory Will-Organization of human beings with their present limitations, in a society on so vast a scale, is possible, and that we must ultimately choose either to live on a smaller scale, or to pay for the advantages of the larger scale by constant dissatisfaction with our relations to each other. But the effort of inventing a better Will-Organization than now exists is at least worth while. That invention will require the cooperation of many minds and the experience of many years. It is clear, however, that it will have to contain all the three elements which I have just discussed" (p. 309).

The final chapter, on the Organization of Happiness, returns to the original thesis, that our present order is not making men happy. It has no panacea to offer, but a number of minor suggestions. For example, managers of industry must introduce variety into the work offered to employees, even at a sacrifice in efficiency; pains must be taken to preserve the self-respect of the workers, and to enable them to employ all their faculties. The principle of the Sabbatical year may well be applied to all industries. Care must be taken not to make unnecessary or over-complex regulations to burden life and interfere with its freedom.

With such tentative and piecemeal suggestions, rather than with any sweeping scheme of reform, the author leaves us. We miss the large vision and daring proposals of, say, Mr. H. C. Wells; but we have an ideal of scholarliness, of basing our efforts for progress upon a scientific knowledge of human nature and its needs, that is conspicuously lacking in many contemporary discussions of these problems. Just how some of Mr. Wallas's more abstract and prosy discussions are to shed light upon them does not always clearly appear. But psychological analysis and theory of even remote utility is infinitely more desirable—if less readable—than the superficial rhetoric and appealing "instances" of more popular writers.

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JOURNALS AND NEW BOOKS

AMERICAN JOURNAL OF PSYCHOLOGY. July, 1914. *A Synthetic Genetic Study of Fear, Chapter II.* (pp. 321-392): G. STANLEY HALL.—In children the fears of certain high places, falling or orientation to gravity, along with a love for climbing, leaping from high places.

etc., are very common. These early fears are a relic of our arboreal ancestry. The fear of horizontal orientation or "knowing where we are at" is also very fundamental. This fear is probably a racial memory of the time when getting lost was dangerous to the life of prehistoric man. Fear of closeness or fear of confinement probably arises out of the early need for air and free breathing-space. In the same way the stick in striking, missile throwing, piercing with points, cutting edges, and the binding by strings, are each attended by fears and instinctive outbreaks. Ophidiophobia or fear of serpents; ailurophobia, dread of cats; ereuthophobia, dread of strangers or human beings, along with shame, blushing, etc.; Pathophobias, such as anorexia, phobias of diarrhea, etc., are discussed in the light of their phyletic history and in their development in the individual. *On the Perseverative Tendency* (pp. 393-426): WILLIAM SILLIMAN FOSTER. - The historical survey shows that the term perseveration has been used with many different meanings. Experiments show that perseveration phenomena can be accounted for in other ways than a spontaneous mental recurrence or spontaneous activity in the nervous system. *An Historical Note on the Lange-James Theory of Emotion* (pp. 426-447): E. B. TITCHENER. - A careful historical survey reveals the fact that theories of emotion very much like James's had been proposed by several writers preceding him. James probably never consciously borrowed from these sources, but could easily have come in contact with many sources for the theory which he proposed as his own. *Note on the Affective Values of Colors* (pp. 448-449): SAMUEL W. FERNBERGER. - In the comparison of colors in pairs pleasantness and unpleasantness appear as true psychological opposites. *Book reviews* (pp. 450-460): Warner Brown, *The Judgment of Very Weak Sensory Stimuli with Special References to the Absolute Threshold of Sensation for Common Salt*. - SAMUEL W. FERNBERGER. Géza Révész, *Zur Grundlegung der Tonpsychologie*: H. P. WELD. E. B. Huey, *Backward and Feeble-minded Children*: ELIZABETH WOODS. W. H. Winch, *Inductive versus Deductive Methods of Teaching; An Experimental Research*: S. C. FISHER. Dr. Johannes Maria Verweyen, *Philosophie des Möglichen: Grundzüge einer Erkenntniskritik*: B. H. BODE. D. White, *Forgiveness and Suffering: A Study of Christian Belief*. H. Russell, *The Flea*. A. M. Adam, *Plato; Morals and Political Ideals*. J. S. Huxley, *The Individual in the Animal Kingdom*. S. C. Schmucker, *The Meaning of Evolution*. S. Herbert, *The First Principles of Evolution*. Rabindranath Tagore, *Sādhanā: The Realization of Life*. Anthony, *Second Character on the Language of Forms*. Sir Harry Johnston, *Phonetic Spelling*. Stanton Coit, *The Soul of America*. G. T. Whitney and P. H. Fogel, *An Introduction to Kant's Critical Philosophy*. Benedetto Croce, *Historical Materialism and the Economics of Karl Marx*. Bernardino Varisco, *The Great Problems*. Hans Driesch, *The Problem of Individuality; A Course of Four Lectures delivered before the University of London in October, 1913*. *Book Notes*: Frank Thilly, *A History of Philosophy*. Thomas Pearce Bailey, *Race Orthodoxy in the South, and Other Aspects of the Negro Question*. Alexander F. Shand, *The Foundations of Character; Being a Study of the Tendencies of the Emotions and*

Sentiments. Edward L. Thorndike, *Educational Psychology*, Vol. III., *Mental Work and Fatigue and Individual Differences and Their Causes.* Victor Branford, *Interpretations and Forecasts: A Study of Survivals and Tendencies in Contemporary Society.* Stanley Waterlow, *A Son of the Ages: The Reincarnations and Adventures of Scar, the Link: A Story of Man from the Beginning.* H. Addington Bruce, *Adventurings in the Psychical.* Von Johannes Rehmke, *Die Seele des Menschen.* Carl Emil Seashore, *Psychology in Daily Life.* Charles E. Hooper, *Common Sense: An Analysis and Interpretation.* Alexander Darroch, *Education and the New Utilitarianism and Other Educational Addresses.* Elizabeth Severn, *Psycho-therapy: Its Doctrine and Practise.* Paul Carus, *Nietzsche and Other Exponents of Individualism.* Von Hans Schaffganz, *Nietzsches Gefühlslehre.* Walther Haeckel, *Ernst Haeckel im Bilde; Eine Physiognomische Studie zu seinem 80. Geburtstage.* Von Max Verworn, *Die Mechanik des Geisteslebens.* Gardner Cheney Basset, *Habit Formation in a Strain of Albino Rats of Less than Normal Brain Weight.* Robert M. Yerkes, *The Heredity of Savageness and Wildness in Rats.* Robert M. Yerkes, and Chester E. Kellogg, *A Graphic Method of Recording Maze-reactions.* Robert M. Yerkes, *The Harvard Laboratory of Animal Psychology and the Franklin Field Station.* Robert M. Yerkes, *The Study of Human Behavior.* Robert M. Yerkes, *Comparative Psychology in Relation to Medicine.* Robert M. Yerkes, *The Intelligence of Earthworms.* J. C. B. Mohir, *Welt und Weltanschauung.* Agostino Gemelli, *Un Nuovo Estesometro.* Agostino Gemelli, *Intorno alla Influenza Esercitata dalla Posizione della Parti del Corpo sull'Apprezzamento di Distanze Tattile.* J. and A. Churchill, *The Journal of Mental Science.* William Brown, *Abnormal Psychology.* Darwin Oliver Lyon and Henry Lane Eno, *A Time Experiment in Psychophysics; Part II.* Shepherd Ivory Franz, *Psychological Factors in Medical Practise.* William Boyd, *From Locke to Montessori: A Critical Account of the Montessori Point of View.* William Brown, *Freud's Theory of the Unconscious.* Sigm. Freud, *Internationale Zeitschrift für ärztliche Psychoanalyse.* A. A. Brill, *Psychoanalysis: Its Theories and Practical Application.* *One Hundredth Annual Report of the Trustees of the Massachusetts General Hospital, including the General Hospital in Boston, the McLean Hospital, and the Convalescent Hospital in Waverley, 1913.* Von Ernst Jentsch, *Julius Robert Mayer; seine Krankheitsgeschichte und die Geschichte seiner Entdeckung.* Jerome Dowd, *The Negro Races: A Sociological Study.* Marion J. Mayo, *The Mental Capacity of the American Negro.* H. L. Hollingworth, *Experimental Studies in Judgment.* Paul Emile Lévy, *The Rational Education of the Will: Its Therapeutic Value.* Michael West, *Education and Psychology.* Arthur Mitchell, *Studies in Bergson's Philosophy.*

Carus, Paul. *Truth and Other Poems.* Chicago: The Open Court Publishing Company. 1914. Pp. 61. \$1.00.

Jordan, David Starr and Jordan, Harvey Ernest. *War's Aftermath.* Boston and New York: Houghton Mifflin Company. 1914. Pp. xxxi + 104. 75 cents.

Kallen, Horace M. William James and Henri Bergson: A Study in Contrasting Theories of Life. Chicago: The University of Chicago Press. 1914. Pp. xi + 248. \$1.50.

NOTES AND NEWS

THE death of Emeritus Professor Campbell Fraser, of the University of Edinburgh, at the advanced age of ninety-five years, removes one who knew the city almost as Scott knew it. Dr. Fraser became professor of logic in the New College, Edinburgh, in 1846, and ten years later he succeeded Sir William Hamilton in the chair of logic and metaphysics in the University of Edinburgh. To the active duties of his chair he added very soon those of the dean of the faculty of arts, and continued to act as dean until his retirement from academic labors in 1891. In the early fifties he also edited the *North British Review*, and came into touch with many of the most distinguished essayists and philosophers of the day. He lectured in a simple, clear, unimpassioned style, which did not appeal strongly to the ordinary student, but to those who had philosophical tastes he proved an admirable guide, and retained their affection to the end. Some twenty of his students have occupied chairs of philosophy in Great Britain and the Colonies, and if we include professors in theological colleges the number may be substantially increased. His literary output was considerable, the editions of Locke and Berkeley being of especial value. As Gifford lecturer in Edinburgh in 1894-5 Campbell Fraser developed a philosophy of theism, based on traditional Scottish lines, but worked out in the broad spirit of the nineteenth century. His interest in science was shown by his becoming, early in his professorial career, a fellow of the Royal Society of Edinburgh, serving as a member of council for a term of years.

A PRESS cablegram from Berne states that M. Hugo Claparède, professor of psychology in the University of Geneva, son of the Swiss minister to Berlin, has been dismissed from the university by the Swiss federal council on the ground that his expressed views concerning the violation of Belgian neutrality are inconsistent with the observance of neutrality of Switzerland. Professor Claparède had offered his resignation, following a demonstration against him by the students, but the federal council declined to accept it and instead dismissed him. As Professor Claparède entered his classroom on November 24, the students read an address in which they asked him to resign, because "your attitude prohibits you to continue to occupy a public post remunerated by the state." Later the matter was brought up in the federal council through an interpellation by Deputy de Rabours.

MESSRS. SMITH and Elder have recently published a new edition in one volume of Mr. A. W. Benn's work, "The Great Philosophers." The results of Mr. Benn's thirty years' studies since the first publication of the work are incorporated in this edition, whilst antiquated or irrelevant matter is omitted.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

WHAT IS BEHAVIOR?

THE term behavior sometimes denotes such phenomena as the action of oxygen or the motion of a comet, just as at other times it refers to the actions of organisms. Consequently, it is not possible clearly to mark off the subject-matter of psychology by this term alone, because it is not possible to do whatever we please with the established meanings of words. Accordingly, it has been suggested that psychology be defined as the science of the kind of behavior that exhibits character and intelligence. Here are, however, two terms of varied and complex usage that need definition as much as does behavior. To exhibit character may mean to possess positive traits and so apply to behavior, but in the same sense it applies to everything that can be an object of thought; and in what sense can the behavior of lower organisms be said to display intelligence? How are we to understand the character and intelligence of many of the lower organisms with which comparative psychology has to do? To make the question concrete, In what sense can the behavior of white mice be said to display these two traits? From the genetic point of view, character and intelligence may be said to be results and outcomes of behavior rather than its fundamental attributes. Consequently, it seems clear that these two terms are too vague to serve as differentia of the kind of behavior the psychologist is interested in.

For the science of biology, accommodation and habit are fundamental traits of behavior, and to the present writer they once appeared to be sufficiently simple and definite to satisfy the needs of psychology also. But the more closely these laws are examined the less do they seem to express the real inwardness of psychological behavior. Selection and repetition are still simpler terms and stand closer to the essence of the matter. All living, whether organic or mental, involves selection and repetition among the acts of individuals and species. Habit is the tendency of living things to get again a good that has once been achieved; accommodation, the tendency to prefer more adequate procedures, the tendency of living

things to pursue a larger good. In the great majority of organisms both processes are unreflective, and among reflective beings both become less reflective as they become more habitual. Reflection appears when habit and accommodation prove to be inadequate ways of meeting the conditions of life.

Both habit and accommodation have been represented as purely physical and chemical phenomena. In Spencer's psychology reactions to stimuli are determined in the first place by the energy of the stimuli and the physical properties of the organism. A wave of molecular change follows "the line of least resistance" and issues in movements the energy of which is equivalent to the energy of the stimuli acting under the conditions of their transmission through the organism. Repetitions of the stimuli bring about repetitions of the movements, because "the line of least resistance" will have been rendered "more permeable" by the first process. Thus habits are established and habits induce nerve fibers and psychophysical organization.

In criticism of this description of mental life in terms of physics and chemistry, it has been pointed out that stimuli do not recur in the regular and periodic manner here presupposed. Growth takes place not so much by favor of a fostering environment as in spite of one that does not foster it. Life is from first to last and in all its phases a struggle. The life of an organism is a process of *getting* the proper stimuli rather than a passive reception of them from without. A certain power of selection, as well as repetition, appears to be characteristic of living tissue everywhere. Organisms react to stimuli not so much according to the nature of the stimuli as according to their own nature, and growth takes place by reacting to old stimuli in new ways as often as by reacting to new stimuli in old ways. It is the problem of the science of biochemistry to describe this process in terms of molecular change; but for other branches of biology and for the kindred sciences of human life, the fact that organisms singly and in groups behave in ways that tend to keep up and maintain the organism and its species is most fundamental.

Habit is not distinct and separate from accommodation and selection. Stereotyped repetitions of previous activities do not, as a rule, occur in actual living; actual living is a continual reformation of habitual tendencies. Among all higher organisms imitation and suggestion operate to modify congenital systems of active tendency, and so render life social. It has for years seemed to the present writer that the science of psychology, based as it usually is on the reflex arc conception of psychophysical activity, should adopt a new foundation. The reflex arc with its afferent, central, and motor segments is an attempt to describe mental life in terms of matter and motion,—

that is to say, it is an attempt to conceive mental phenomena as mere redistributions of energy. The latter is the problem of biochemistry and of that branch of biology known as physiology. If psychology is to have in the future a distinct field, it must start with the fact so obtrusively manifest in the phenomenon called value, the fact, namely, that all mental life tends to conserve itself by getting and keeping its own appropriate stimuli. The fundamental fact of mental life is the fact of value, the tendency of psychic organisms first to select and then keep within their control whatever is necessary to their life. This is not a mechanistic reflex, but a self-maintaining act.

Since 1898 I have for convenience used the word *aesimation* to designate this type of behavior. It is more comprehensive than the word consistency, being the general form of prereflective as much as that of reflective psychoses. It is more comprehensive than instinct or impulse, character or intelligence. The word impulse, especially in the German rendering, *Trieb*, has a similar meaning, but this does not properly denote the higher and more complicated mental functions. The significance of *aesimation* is enormously increased by imitation and suggestion. When life reaches the stage of organization at which it is possible for organisms to set and receive copies imitatively, the stage at which the tendency to seek and follow such copies is well established, the process of *aesimation* operates to render the individual susceptible to the influence of tradition and the institutions of his group. It is then that character, in the sense of habitual social correlations, appears, and the consciousness develops of a kind of being and of a world of common experience with which the individual is identified. From the standpoint of this common type of being and common world, all the actual contents of attention have meaning and value. And this is intelligence. It is this consciousness of the kind of being to which one belongs and of a world that is shared in common with all others of one's kind that constitutes the essence of personality; for every genuine person knows himself without make-believe to play a human rôle. This is the basis of the moral sense, and here too is to be found the psychological foundation for those norms of logical and esthetic value which find expression and application in science and art. We can say, therefore, that psychology is not primarily concerned with self or character or intelligence: the science is primarily concerned with the type of behavior which we have here called *aesimation*: but this type of behavior is of such nature that by growth and development it unfolds into all these forms of life. And when so regarded, intelligence and character cease to be a sort of inner world, comparable to a glass aquarium with gold-fish swimming in it, that every one carries about with him.

The advantage of this conception of the subject-matter of psychology seems to me to be threefold. In the first place it gives to the science a unity that it now lacks. The psychologist is compelled to-day to incorporate in his treatment of his subject several chapters that are taken directly from the works of anatomists and physiologists, and it must ever be a reproach to the subject that he can not devote his attention to what he now accepts as his proper field, namely, the phenomena of consciousness. Once conceive the subject as a science of a certain type of behavior, and references to the physical and physiological conditions under which such behavior is possible become logically relevant to his treatment. In the second place, this point of view gives to the development of the subject something of the interest of a continuously unfolding plot. Where treatises on psychology are to-day collections of treatises which inevitably seem to the neophyte to be more or less unrelated except by the accident of their being included within the covers of a single book, the whole subject would gain enormously in continuity of development. Lastly, such a treatment will tend to give to the subject something of the vividness and reality of life itself. There are no problems that are germane to the subject at all that can not be treated from this point of view, and we might add that such a treatment would not prepossess the minds of young students with conceptions that tend to stop all effective thinking on the deeper issues of life.

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IDEO-MOTOR ACTION: A REPLY TO PROFESSOR MONTAGUE

PROFESSOR MONTAGUE'S very ingenious criticisms of my arguments against the truth of the ideo-motor theory obviously require that I either recant or retort, though in my opinion experiment rather than discussion is what the problem really needs.

Montague is not interested in the arguments which I used to show that in fact ideas do not tend, apart from bonds accounted for by the laws of instinct and habit, to produce movements like themselves any more than any other movements, but confines his criticism to certain data that I introduced to show "that its own apostles think more highly of it the less clearly and emphatically it is stated, and even believe that the power of an idea's likeness to the movement to produce that movement is in inverse ratio to the amount of likeness," and further to show why the theory, if unsound, was able to "gain credence and why it is still cherished."

Montague's first criticism is as follows: In arguing from the fact that psychologists rank the second of each of the series of statements below as truer or less false than the first to the conclusion that the less emphatically and clearly the ideo-motor theory is stated the more acceptable it is, Thorndike neglects the fact that "other things being equal, the more complex an event the less its antecedent probability; and the more complex the elements asserted in a proposition the greater the possibility of error and the less the probability of truth."

SERIES A

1. A movement idea is the revival, through central excitation, of the sensations, visual, tactile, kinesthetic, originally produced by the performance of the movement itself. And when such an idea is attended to, when, in popular language, we think hard enough of how the movement would "feel" and look if it were performed, then, so close is the connection between sensory and motor processes, the movement is instituted afresh.

2. If a child or a primitive man has a vivid idea of a movement of his own body, that movement is thereby made unless it is prevented by some contrary idea.

SERIES B

1. To make your spear fly straight and pierce the breast of your enemy, it is useful to think hard of the visual, tactile, and kinesthetic sensations originally produced by the performance of the movement itself.

2. To make your spear fly straight and pierce the breast of your enemy, it is useful to imagine the spear striking him full in the breast.

Whether or not I attached due weight to the formal differences between these statements and between the several members of other similar series used, it is not for me to say. I may have forced the interpretation of the ratings somewhat to the partial neglect of formal features.

Montague, however, neglects three matters, each of far greater consequence than this complexity-improbability feature. He neglects the fact that the opinions of psychologists favor statements of the ideo-motor theory *as a principle*, but deny the theory *in concrete cases where its application is sufficiently hidden*,—and do so irrespective of the complexity factor. He neglects also the fact that the laws of connection-forming by exercise and effect fit their average opinion by such concrete hidden cases as fully as the law of ideo-motor

action or connection-forming by similarity goes contrary to it. He neglects also the fact that the ratings which controverted the ideomotor theory did so in spite of the general tendency of men of science to be suspicious of the truth of general, indefinite, and vague statements.¹

It is, of course, true that these judgments of relative truth are, in any one case, far from being an exact account of the opinions of the psychologist in question—that misunderstandings, over-weighting of certain features of a statement, carelessness, and the like may play important rôles. It is true that certain constant errors may creep in. A mere counting of votes without an intelligent watchfulness concerning the circumstances of the voting would be risky. But a committee of impartial men of science reading the ratings and their annotations, would, I am sure, conclude that American psychologists, though voting for the ideomotor theory as a general principle, (1) think less well of it the more clearly it is interpreted as a doctrine that likeness creates bonds in behavior rather than as a vague doctrine that, for one reason or another, the laws of exercise and effect possibly included, we tend at times to make movements that we think of, and (2) accept explanations of concrete cases of action in an order of preference which the likeness theory fits far less well than its opposite.

Montague's second section argues that likeness is, in general, potent, that "All affects are in some degree like the causes," that "echoes, reflections, and . . . reproduction . . . in living matter," photographs, electrical induction and conduction" are cases of this general potency, and that the savage's mistake was primarily his ignorance of "the necessity of nerve-fibers as the medium necessary for the execution of one's plans or ideas."

In general, "The cause A by transmitting energy through a medium M produces an effect A' . What the qualities constituting the effect A' will be, depends upon the antecedent qualities of the cause A and also upon the medium M . In brief, $A' = f(A, M)$. If M were perfectly transparent, or if its distortions corrected one another, A' would be exactly similar to A . And conversely, the extent to which in a given case the effect fails to duplicate the qualities of its cause depends upon the distorting influence of the medium.

¹ For example, a vote as to the relative truth of statements 1 and 2 below would probably be *in favor* of the first.

1. To make an estimate of where you are at sea, it is useful to calculate the latitude and longitude of the place where you are.

2. To make an estimate of where you are at sea, it is useful to make calculations concerning where you are.

Now between a given act and the psycho-cerebral state which we designate the 'idea of' that act there is a resemblance. The neural mechanism connecting the two events furnishes a perfectly good medium by means of which the psycho-cerebral cause can produce its physical effect. Experience seems to show that ideal anticipations of simple bodily movements are as a matter of fact followed by the movements themselves."

I am ignorant about causes, media, transmitting, effects, and the like, and will not discuss the general potency of likeness to do anything in nature. To the particular case of the likeness of an idea to a movement, however, I have given some attention and have tried in the paper in question to prove that experience seems to show that ideal anticipations of simple bodily movements are followed by the movements themselves only when the neural correlate of the ideal anticipation or some part thereof connects with the act in question as a result of the original constitution of the nervous system or the modifications produced in it by use, disuse, and the results thereof, accident, disuse, drugs, and the like. Since in man's original constitution there are no bonds leading from ideas of acts to these acts, this leaves likeness impotent. I will not repeat the evidence here. Experimentally I am unable to produce an act by imaging it or thinking of it unless the act has been connected already as sequent to the image or thought in whole or in part by past habit-formation, nor am I acquainted with any experiment that has succeeded in doing so. The closeness and surety of the connection in cases where ideas do evoke acts seem to show zero correlation with the amount of likeness between the members of the pair and a very high correlation with what would be expected from the laws of exercise and effect and their subsidiaries.

Lest I may seem to have used my ignorance about general concepts of causes, media, and the like to avoid Montague's claim that likeness might be expected to be potent in human behavior because it is potent in nature generally, I will try to refute it in his favored case—the reproduction of living forms. A single cell A , grows, divides, producing two, in part like the first, because they *are* the first with some changes. This continues and A^2 , one of the eventual subdivisions of the original A , separates from the mass and, alone or in combination with another cell B^2 (separated off in a similar manner as an eventual subdivision of B), becomes what we call the next generation. What did likeness do? Nothing that I can discover. If the fact that one half of a chromosome was like another half made them split longitudinally, or if the fact that two cells, x and y , were alike made x resist the action of some environmental cause of variation un-

less y also was being acted on by it, or if the fact that certain cells x and y were alike made x and y in any degree or manner respond alike to different situations or differently to an identical situation so as to maintain their likeness, the likeness of parent to offspring could be intelligibly and usefully said to have done something in reproduction. But nothing of this sort occurs. All the effect of likeness seems to be fully taken account of by the simple statement that two bits of chromatin that are alike stay alike until something makes them different, retaining those identical elements which are not altered. The child is like the parent by heredity simply and solely because he is a later off-shoot of the same chromatin that grew into the parent. And in general I should say that any facts which seem superficially to show likeness as dynamically potent will be found to show only such truisms as that like things stay alike unless made different, that if two things are alike they will produce like effects under like circumstances, and the like.

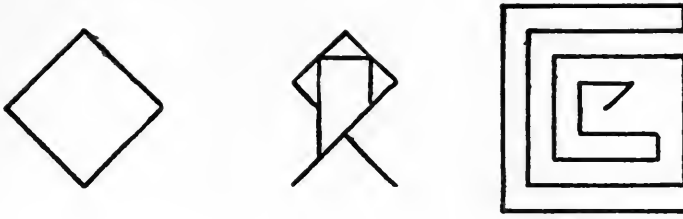
In a third section Montague objects that "the denial of ideomotor implies a denial of the possibility of imitation and finally of perception itself."

The denial of ideomotor action does not, in my opinion, imply such a denial, the two issues being different and requiring different evidence for solution, but I do in fact deny that the perception of an act performed by another has any *general* potency to produce the act in the witness. Apart from certain special instincts such as "smiling when smiled at, laughing when others laugh, yelling when others yell, looking at what others observe," etc., and from acquired habits wherein the perception of an act's performance by another has become the situation productive of that act in the witness, imitation of the sort required does not, so far as I can see, exist. The evidence I have presented in some detail elsewhere.² I find no evidence that "Gestures, accents, and rhythm in general are imitated spontaneously."

The cases of what Montague calls voluntary imitation such as "the painting of a picture of any objective situation, or the repetition of a sentence" are, of course, real. They do not, however, seem to me "difficult to explain without admitting a tendency of perceptions to reproduce their like." On the contrary, the facts observed in teaching children to write or draw from models seem to me to be beautiful examples of the impotence of a perceived relational scheme to organize the elements in behavior, except as the laws of exercise

²"The Original Nature of Man," Chapters 8 and 12.

and effect allow. A child who can draw straight lines is *not* enabled to draw figures like these



by the mere perception of the figures. Relating the straight-line responses to fit the demands made by the models requires organizing bonds, and these are formed under the laws of exercise and effect just as truly, though not as clearly, as any bonds.

Montague's argument in the case of perception is that admittedly "perceptions have a relational similarity or one-to-one correspondence with their causes," and that this correspondence or relational similarity would be impossible if the likeness of an object to the perception of the object had no share in causing the object to evoke in man the corresponding percept.

The disagreement, of course, concerns the causation of the correspondence. As I see it, the sensorial and perceptual features of a man's response to any situation are caused nowise differently from any other features of his response. The human animal *sees* what he *sees* when a lion jumps at him or a baby nestles against him for just the same reasons that he then shrieks and runs or smiles and fondles; the likeness of the real lion to the first visual perception and the likeness of the baby to the second being of zero potency both in producing the shriek or smile and in producing the perceptual elements of the response.

Any further justification here of the view of the dynamics of human thought and action which my attack on the ideo-motor theory illustrated would probably be less instructive than the systematic presentation of the view which I have elsewhere made.³

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³ "The Original Nature of Man," Chapters 1, 2, 5 to 14, "The Psychology of Learning," Chapters I to V.

A REPLY TO SOME CRITICISMS OF THE DELAYED REACTION

ALTHOUGH Professor Watson in his recent book¹ has given a very sympathetic account of a study² once made by the present writer, there are certain points in that work which seem to have been misunderstood, and others where additional comments may now be made with profit. The crux of the matter lies in the ascription to raccoons of a process which functions as an idea does in human behavior. "By applying the term 'ideas' to these cues, I mean that they are similar to the memory idea of human experience so far as *function* and *mechanism* are concerned. They are the residual effects of sensory stimuli which are retained and which may be subsequently reexcited. The revival, moreover, is selective and adaptive to the solution of a definite problem, and when aroused they function successfully as a necessary substitute for a definite component of the objective stimulus aspect of the problem."³ This conclusion was based upon two bulwarks: (1) no external stimulus was present that could be the essential condition of a successful delayed response; and (2) there was no observable portion of the raccoon's body which remained in a constant orientation during the interval of delay. The first argument forced the writer to look for the essential cues within the animal's body. The second argument made it probable that the cue was one which could be reinstated, *i. e.*, one which was not present continuously during the interval of delay. This last conclusion can never be made with absolute certainty because certain motor sets which were not and could never be visible may have been constantly maintained. However, this constant maintenance was thought further improbable because successful reactions were made, although the animal had been violently distracted during the delay.

Professor Watson takes me to task gently under both of the above heads. He says, with respect to the absence of continuous bodily orientation, "On the other hand, *several*⁴ of the responses of the raccoons and all of the responses of the children offered a mode of behavior which can not be explained in the terms of maintained bodily attitude" (p. 227). Again, it is possible "that there was an actual error in observation. Most of the raccoons were admittedly making the correct reaction upon the basis of maintained bodily orientation." The word "several" would suggest that the number was small and

¹ Watson, Jno. B., "Behavior: An Introduction to Comparative Psychology," Holt and Co., N. Y., 1914.

² Hunter, Walter S., "The Delayed Reaction in Animals and Children," *Behavior Monographs*, Vol. 2, No. 1, 1913.

³ "Delayed Reaction," page 73.

⁴ Italics mine.

could be accounted for by chance. Yet if the reader will refer to the descriptions,⁵ I think he will be convinced that this was not the case. The following observation was also made: "Again, the fact that this type of behavior dominated for several days at a time indicates that something more than chance was manifesting itself. At 8 seconds' delay, *e. g.*, Jack made 10 correct reactions in one day, starting with wrong orientations. The following two days had 7 each; and the following two, 4 each. The next day the delay was increased to 9 seconds and 8 correct reactions with wrong orientations were made. Eight, 6, 4, 8, 6 were the records of such reactions for the following days. The next day after these, 10 seconds' delay was given. Here 9 correct reactions were made, starting with wrong orientations. These are fair samples of the prevalence of this type of reaction."⁶ To this should be added a careful perusal of Table XI., which considers the relative frequencies of appearance of the two, orientation and non-orientation behavior, for a long period of time. The significant point here is the large percentage of correct reactions out of the total number of responses made with faulty orientation. There was no "error in observation" as Professor Watson fears. It is stated⁷ that different persons had operated the release. These persons were graduate students. The reactions were also witnessed by Professor Carr. All of the observers agreed that many times no constantly maintained attitudes could be detected. It would probably have been wise to have stated this explicitly in the monograph.

In Professor Watson's book⁸ it is stated that the raccoons may have depended upon olfactory cues derived from the external environment or upon temperature cues. Watson is right when he says these factors were not sufficiently controlled, *if* he means that more controls might have been used. The writer still holds, however, that considering the external conditions and the types of behavior present (and after all this is the basis for judgment) the above external stimuli of temperature and odor were controlled adequately enough to render valid the deductions drawn. Could the raccoons have been reacting to temperature and olfactory differences which varied in location with the location of the light? The writer thinks not. (1) It was only possible to detect occasionally any temperature change at all due to the presence, for five seconds, of the miniature light. The maximum change detected at any time was 1° C., and this obviously was immediately after the light was turned off and not after a delay of 10-25 seconds. When discussing this⁹ the writer did so in a

⁵ See "Delayed Reaction," pages 43-46 and 49-50.

⁶ *Ibid.*, page 44.

⁷ *Ibid.*, page 66.

⁸ See pages 225 and 227.

⁹ "Delayed Reaction," page 66.

summary fashion, relying upon the reader's remembrance of the behavior described on previous pages.¹⁰ The animal's behavior during delay was not at all conducive to the detection of minute (temperature) and hypothetical (odor) stimuli. The animal was in constant motion about the release box in its attempt to get out. Moreover, the animal oriented immediately upon the presentation of the light. No one observing the responses in the light of the above facts would have entertained the hypothesis that temperature and odor were effective. When the animal was oriented toward the box on the extreme right at the moment of release, while the box on the extreme left was the proper one to choose, the impetus of the animal's efforts to escape carried him practically always half way to the right-hand box. Yet he would wheel and escape successfully, passing the middle box by. The whole reaction is made quickly and with decision.

There is a further factor militating against the possibility of temperature and odor having been functional as cues. The point was in the writer's mind when the monograph was written, but was not utilized as it now seems it should have been. The raccoons were confined in a release whose front, sides, and top were of *glass*. And yet they oriented at once and reacted as above described. This structure was commented upon in the paper (p. 23). It is there stated that another release whose faces were covered with wire was used later in the experimentation. The writer's attention was so occupied with the other and to him sufficient arguments against the utilization of temperature that he neglected to state when the glass release was discontinued. An examination of the diary records kept at the time of the tests shows that the change was made July 12, 1911, approximately nine months after tests had been started with Bob and Betty and just prior to the beginning of the work on Jack and Jill. Let the reader refer to one of these tables.¹¹ Reading down the first column, he will soon come to the entry "2nd stage 240 86." The change of release was made 61 trials before the close of these 240 trials. It will be seen from this that delays of 30 seconds were made with the glass release.¹² The release box used with the rats was also of glass. A wire one was used with the dogs.

Certainly the most probable cues are not temperature and odor. It is not to be expected that the data and conclusions presented in a new piece of work will be accepted as final until other investigators have carefully verified them.

It is not necessary to enter into a discussion concerning language.

¹⁰ Cf. pages 44-46 and 48-51.

¹¹ Page 83, Table XV.

¹² The wire release referred to in this table is the large wire release described on page 37.

Professor Watson says that raccoons do not possess language habits (p. 227), but he elsewhere in the book (pp. 332-3) recognizes the existence of other than vocal language, *i. e.*, language habits having their locus "in the general bodily musculature." Professor Watson admits (p. 333) that he only believes and does not know that this type of language habit is formed later than the vocal type. Frankly the question can not be definitely answered at present. But if we are to get at the genesis of the idea function or, as one might say, the "language habits of the body" and if we are to find out whether or not this appears prior to the genesis of vocal language (*i. e.*, in the animals below man), it will, the writer firmly believes, be through an analysis of the delayed reaction.

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SOCIETIES

THE NEW YORK BRANCH OF THE AMERICAN PSYCHOLOGICAL ASSOCIATION

THE New York Branch of the American Psychological Association met in conjunction with the Section of Anthropology and Psychology of the New York Academy of Sciences on November 23, at Columbia University. The following papers were read:

Some Aspects of Emotional Reactions.—WAYNE P. SMITH.

Importance of Emotion.—Psychological study is beginning to confirm common observation as to the significance of the feelings and emotions in behavior. Educational practise has been in advance of educational theory, for it has sought to utilize feelings and emotions in development of sane and efficient social workers. It has recognized that things that affect or evoke emotional reaction and tend to get more immediate motor response command more thorough consideration and interpretation than do those without this "appeal" or emotional character. From feeling, as the elemental evaluation of things for life, springs inquisitiveness, or the whole knowledge process. The chief function of knowledge seems to be to clarify, that is, to emphasize and unify in a larger perspective, the values of things to which response is to be made.

Conditions of Emotional Reaction.—Emotivity depends, first, upon the nature of the individual as determined by race, sex, age, environment, and disposition; second, on the state of the individual as determined by fatigue, health, inertia, and the functioning of certain organs, especially the cerebral cortex, the skin, certain sense organs,

and the alimentary canal, sexual organs, certain "ductless" glands, the circulatory and, in a possibly less degree, the respiratory systems; third, by certain psychic conditions as attitude, interest, preoccupation, suggestibility, psychical habits of relatively dependable character in presence of certain emotive stimuli, and finally the interpretation of the situation. All the conditions that contribute to euphoria and dysphoria are involved likewise in the emotional reactions of an individual.

In a more specific way emotional reaction depends upon the kind and degree of organization of an individual. This varies from one pole to the opposite. One extreme type is almost chaotic, incoherent, impulsive, and explosive, indiscriminately responsive to all sorts of stimuli. The other extreme is highly centralized, exclusively narrow, mono-idealistic or *idée fixe* in character. In the latter class all vital tendencies and interests are dominated through repression, or perversion, by a single zone which has a hair-trigger responsiveness to suitable emotional stimulation. Outside this zone such an individual shows apathy, a kind of poise, and a comprehensive "*nil admirari*" attitude. Variations of this type may be found not only in industrial fields where occupation and circumstance may be responsible, but also in such fields as religion, art, morality, even science and philosophy. Organization tends to establish almost insuperable psychic barriers against all stimuli external to the particular zone of interest.

Emotivity is also determined by degree of "intellectual control," and this is not to be confused with "organization" just cited. In those in whom intellectual control is most highly developed, all emotive excitations are taken as problems of knowledge. Even "shocks" are effectually dealt with by a system of psychic defenses and controls. A standard of "emotionless" behavior may obtain. There are, of course, many variations from the extreme. A general statement may be made that "emotivity varies inversely as intellectual control."

Function of Emotional Reaction.—Psychological research shows that emotional reactions have a valuable positive as well as an apparently negative function. They are more important than to serve merely as symptoms or psychic effects of sensory and motor excitation. They have a causative function as recent investigation shows. The function may be summarized as follows. First, emotions of the more intense kind signalize the compresence of several motor tendencies which, evoked by the perception of the situation, are incoordinate, mutually conflicting, and inhibitory in their struggle for expression. They are, moreover, inhibitory of immediate overt action, in very large measure, at all events, by the organism. Such immedi-

ate emotive responses as usually occur may be means of protection or communication or mere vestiges of acts that have survived the period of their utility. Among these acts may be mentioned convulsive movements, "freezing," cries or growls, trembling, facial contortions, and flushing or pallor of face, hair standing on end, parched mouth, and throat, and so on: many more or less prophylactic or communicative, but some certainly belonging to levels of behavior not adapted to the present.

Second, emotional reactions make possible and necessary novel and more satisfactory mode of behavior. Momentary inhibition of gross organic response by emotion allows a rapid survey of the situation and incited motor tendencies, both old and new, and a selective organization of these tendencies into a fit plan of action. This clarification of the situation as a whole is accompanied by a gradual subsidence of intense emotion into a vigorous emotional tinge that reinforces and "moves" the whole organism to action. The outcome of the plan reflexly qualifies the remembered experience as "emotional meaning" which is utilized in future experience.

Third, emotion not only reinforces and gives ultimate directness and quickness to the plan of behavior adopted, but it also sets free energy and makes it available for immediate consumption. Old accounts say that emotion animates and invigorates with the heat and flush of swiftly-flowing blood, "anger sweetens the blood," reveals a sense of new and greater powers and a faith and zeal that carry one to successful issue. Experimental researches support this popular idea.¹ It is fairly to be inferred from data available that "big" emotions, especially as fear, anger, and possibly love, stimulate through sympathetic connections certain organs as the thyroid and the adrenal glands. The stimulation of the adrenals effects secretion of adrenalin in the blood, which at once accelerates heart action and circulation of blood, changes the chemical nature of the blood and size of blood vessels, sets free in more than usual amount "blood sugar" from the liver which, with the increased supply of oxygen through quickened respiration, provides with necessary energy whatever parts of the organism are concerned in the work to be done. These emotions also by influence upon other glands and organs suppress temporarily alimentary and other processes not serviceable in the given crisis of behavior. The sense organs may be made hypersensitive or partly suppressed. Mobilization and utilization of energy is the essential business of certain emotions. Other processes are held in abeyance. The organism is delicately and accurately adaptable to situations that

¹ See among others the accounts of physiological experimentation of Benedict and Cathcart, F. S. Locke, Vincent, Sherrington, Schäfer, Bickel and Sasaki, Cannon, Pawlow.

affect it. The emotions are instrumental in facilitating adaptation, in setting free extra energy, and in "moving" the whole organism to the efficient achievement of the work that must be done.

Fourth, with the development of an individual, emotional reactions tend to lose their "bigness" and intensity in some measure and, in combination with other factors, to be sublimated into attitudes and sentiments of dependable character and utility in behavior. Emotional as well as other aspects of experience are susceptible of organization into psychic controls. Such controls are modesty, sympathy, love, loyalty, patriotism, and other familiar sentiments. With this feature of emotion education is especially concerned.

Motor-Emotional Expression of an Infant.—GARY C. MYERS.

The report was based on a rather extensive observation of a baby's emotional expression by the arms and legs, during his first year. If the behavior of the child studied is typical, it seems that pleasurable movements are at first random, due, perhaps, to lack of coordination of the moving members. Soon these movements became alternate. In this case, the one member of the pair, being stimulated to response, consequently suffers fatigue, and the other member, due to gradually coordinating motor pathways, takes up the movement, which in turn shifts to the first again, etc., until both are accumulatively fatigued, or the stimulus is too weak to elicit a response, or both. Then, with development, each member of the moving pair becomes less susceptible to fatigue, and, in accordance with the law of habit, tends to repeat its own movement, resulting in rhythmical, successive movements by the same limb. Later the coordination, in greater perfection, provides unified expressions by pairs of the limbs. Finally, single movements of either member of the pair may be set up in response to a strong feeling, or the unified movements may be more speedy and graceful. Therefore, the character and speed of motor emotional reactions by the limbs are determined by the degree of coordination of the members of the moving pairs.

Motor-emotional expressions are apparently the most primitive as well as the most fundamental. These movements seem to serve as drill exercises to discipline the limbs into definite forms of motor reactions out of which grow the useful and voluntary acts of the individual.

Aside from the movements of the first few weeks, emotional expressions by the limbs tended to occur in successive series, with the number of movements per series varying from 1 to 18 and with a central tendency of from 3 to 5 per series. Between the series the interval of time was but a little less than the total time for the series. The rate of movement increased with the increase of motor coordination.

These (rhythmical) movements began on the left side, then were transferred to the right. For example, the left hand began a regular drumming movement on the 123rd day; the right hand began the same type of movement on the 141st day; the left leg, 139th day; right leg, 143rd day. Unified movements by the legs began on the 148th day, and were well developed by the 189th day. Unified movements by the arms began the 177th day and were well developed by the 247th day.

However, the transition from one type of movement to another was gradual; and while new movements for emotional expression became more numerous as time went on, the old movements were occasionally revived and seem never wholly to have died out.

Pleasure tends to induce and accelerate activity and displeasure to inhibit and retard activity. Pleasurable motor expressions tended to reach their maximum and to cease at an appreciable interval before the real pleasurable experience which was in anticipation, *i. e.*, anticipation at its climax seemed to give greater pleasure than the real experience of the thing anticipated.

Unified hand movements, which, by the last few months of the year tended to be toward each other, ceased at the end of the series, with the hands coming together, palm to palm. As the speed and force of these movements of pleasure increased, they finally came together with a clap, and gradually, instead of the introductory unified movements, there developed the regular clapping of the hands as expression of a high degree of pleasure. Therefore, one of the most primitive expressions of pleasure is applause.

The Logic of Intermediate Steps.—H. L. HOLLINGWORTH.

A familiar form of argument in the natural sciences, especially in biology, psychology, and anthropology, is based upon the evidence afforded by the existence of intermediate stages between two conditions, types or processes whose nature or origin is in question. The existence of such intermediaries is commonly held to indicate that the two extremes are either identical in essence or structure, or at least that the one is a direct development of and evolution from the other. The final abandonment of this serial argument in biology was pointed out. Numerous instances from anthropology and psychology were cited in which the argument is still relied on. The nature of the fallacy was elaborated and the inadequacy of the principle of intermediaries emphasized.

Experiment versus Court Decision.—RICHARD H. PAYNTER.

The purpose of this study is to report an experiment on the confusion between trade-names and their imitations, and to compare the results with legal decisions. The decisions of the legally allowable

amount of similarity, confusion, or deceptiveness between the trade-names and their imitations were rendered by judges of state and federal courts, and by commissioners of patents. Cases in which technicalities or other circumstances entered to influence the judgments as expressed in the decisions are not under consideration. Legally a "probability of deception" constitutes an infringement. But since the phrase "probability of deception" has a variable meaning and has not been objectively measured, it is merely an individual subjective standard, though often couched in concrete terms. On the other hand, experiment actually measures the probability of deception between two trade-names by the per cent. of individuals deceived by the imitation. Thus, by determining to what extent the scores of the infringements are psychologically more confusing than those of the non-infringements, experiment can state the reliability of decisions.

Recognition was the method used. Thirty-nine cases were studied, twenty-four being infringements and fifteen non-infringements. Two groups of subjects were tested, the uninformed and the informed. There were ten men and ten women in each group. Each test contained imitations of original trade-names shown in the presentation, exact duplicates of others, and new trade-names. In the test the subject was asked to pick out those trade-names he recognized as having been just seen in the presentation and those he recognized as not having been just seen. The scores were calculated on the per cent. basis. For example, if fifteen of the twenty subjects in the group were confused by the imitation, recognizing it as having been seen, the confusion estimated between the original and its imitation is 75 per cent.

In the uninformed group the averages of the scores of confusion caused by the infringing and non-infringing imitations are, respectively, 50 per cent. (P. E. 2.9) and 38 per cent. (P. E. 3.0), the medians 45 per cent. (P. E. 2.9) and 40 per cent. (P. E. 3.8) and the modes 45 per cent. for both. Ninety-six per cent. of the total number of infringements are contained between the same limits as the non-infringements, and 80 per cent. of the total number of non-infringements are contained between the same limits as the infringements. If the decisions were all psychologically correct there would not have been any overlapping or only very little. In only 6 cases out of 9 which the experiment showed most easy to judge were the decisions really right. The averages, medians, modes, and great per cent. of overlapping show that the difference between the infringements and non-infringements is so small in comparison with the differences within them as to make the decisions very unreliable. The results of the informed group confirm this conclusion. The recognition

method is recommended for determining the amount of confusion between trade-names, trade-marks, labels, and packages. Besides giving an actual measurement the recognition method will constitute an enormous saving in time, energy, and money over the present legal procedure of the courts and patent-office. Congress, however, in legislating recent trade-mark laws, and the Supreme Court of the United States in interpreting the meaning of infringement as expressed therein, state that a reproduction, copy, or imitation which constitutes an infringement must be a "colorable imitation" or such as is "calculated to mislead." These indefinite and variable meanings of infringement should be replaced by a quantitative statement of the per cent. of individuals which must be deceived.

Demonstration of Psychological Apparatus.—C. HOMER BEAN.

Of the two pieces of apparatus that were demonstrated, one is intended to take the place of Willyoung's troublesome pith-ball weights for the determination of the probable lower limit of least sensitivity to touch. My apparatus is a balance with a tubular glass beam, on the lower side of which is etched a millimeter scale. The relative weights of the two arms of this beam may be varied by sliding a small aluminum rod, that is within the tube, one millimeter for each milligram. The base of the instrument supports the hand or arm comfortably and conveniently during the test. Among the difficulties encountered in the use of the pith-ball weights, that are obviated by this apparatus, are the slowness and the consequent fatigue, the extreme variability of the results and the impossibility of lowering a weight upon the sensitive surface twice in the same manner. In order to avoid the last of these faults in procedure, the balance bar is allowed to come gently into contact with the skin, and is raised from it after a fixed interval by means of a cam that is attached to a slowly vibrating pendulum. This pendulum is started and stopped by the experimenter.

The second apparatus, a maze, was planned as a means of assigning a learning task within the capacities of rodents and higher animals, a task that, nevertheless, requires a large enough number of repetitions to make possible a better analysis of the learning process. The curves derived from the alley maze used by Dr. John B. Watson and others descend so nearly vertically at first and so slowly thereafter as to indicate that each animal has solved a puzzle, discovered a trick, in the first complete reaction, and has nothing further to gain except confidence. The curves obtained from my maze descend rapidly at first, but not abruptly, and later gradually decrease in the rate of fall, as all such curves do when the learner is taxing to its full extent his ability in memorizing. This maze consists of tri-

angular rooms of equal size. The animal no sooner enters a room by means of a door in the middle of one of its sides than it is confronted by the necessity of choosing between doors in its two other sides. One of these doors leads into a "blind" room which has no exit, whereas the other leads through many similar rooms, with their adjacent "blind" rooms, to food and friends. The animal is occupied every moment with conscious reactions because there are no long alleys to be traversed between choices. This kind of maze can be increased or decreased readily in the number of its rooms, easily modified in the direction of its "route," or inexpensively replaced by a duplicate in order to eliminate odor and other disturbing factors. Each choice is different from every other choice; but all are of equal difficulty. Therefore, they may serve as equivalent units for quantitative statement of what an animal has accomplished.

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REVIEWS AND ABSTRACTS OF LITERATURE

Truth and Reality: An Introduction to the Theory of Knowledge. JOHN ELOF BOODIN. New York: The Macmillan Company. 1911. Pp. viii + 334.

The aim of the volume before us, as the sub-title implies, is primarily epistemological. The author promises in the preface to follow it up shortly by another volume on metaphysics, to be entitled "A Realistic Universe," where some problems suggested in this book will be dealt with more fully.

The author's position is already known to the philosophical public, since eleven of the seventeen chapters which make up the volume have already appeared in substantially their present form in various American philosophical journals. Professor Boodin makes open profession of pragmatism, but pragmatism of a very special brand, the pragmatism of William James to whom the volume is fervently dedicated. In fact, one of the chief merits of the presentation is the attempt made to rescue pragmatism as a method and as a theory of truth from the unwarranted developments of the instrumentalists and the humanists. It is safe to say that no other disciple of James has presented his position so fully and so accurately.

The work is divided into four parts, in which are taken up at about equal length the four problems: I. "Truth and Mental Constitution"; II. "The Nature of Truth"; III. "The Criterion of Truth"; IV. "Truth and its Object." Under these captions all the main problems bearing on the nature, function, and verification of reflective thought, to which the

pragmatic controversy has called attention, are not only touched upon, but, for the most part, treated in full.

The plea for philosophical tolerance with which Part I. opens, based as it is on our differences of temperament and the different demands which the various aspects of our nature make on the world, is strongly suggestive of the like indirect plea for pluralism in philosophical doctrines at the opening of James's "Pragmatism." "Why should not every sincere man express his life in a philosophy that seems reasonable to him at the time of its experience now? Thus not only man, but the different moments of man, become the measure of all things . . . Agreement and sameness are practical necessities for the sake of common action, but outside the elementary qualifications for social life they are the bane of progress."

The author's fundamental assumption with regard to the nature of mind, an assumption which dominates the entire volume, is implied in the very title of the second chapter, "Mind as Instinct." This assumption, not phrased in exactly these words by the author, may be elaborated thus: Mind is primarily an active process; consequently its various stages or levels of development, its structure and its forms, must be accounted for in terms of this activity. In explanation of the genetic development of the three main stages of mind this assumption takes on a more specific form: "All our fundamental adjustments or categories, viewed from the point of view of individual development, are instinctive or organic adjustments; the stimuli, which constitute the environment, are simply the occasion for calling into play the structural tendencies of the organic growth series." Corresponding to these stages of development we may expect to find sets of forms or categories which serve as the structural framework of each, and under which, accordingly, knowledge at its various levels is organized. The table of categories, though suggested by Kant, must be corrected by and brought into accord with the splendid work done by recent genetic psychology. The levels of intelligence and the corresponding categories are: (1) The Perceptual Level, with its categories of space, time, and habit; (2) The Level of Reproductive Imagination, involving continuity, similarity, and set; (3) The Level of Empirical Generalization, implying the four syntheses of quantity, quality, cause and effect, and individual interpretation or substance. Just what the relation is between these sets of categories and the genetic stages set forth in the preceding chapter is not made clear. Furthermore, though the author insists, in accord with his fundamental assumption, that intelligence is primarily conative, that intelligence remains an instrument, however elaborate, for fulfilling the demands of the will, the relation of these categories to the volitional activity is not sufficiently elucidated. Are they, like the postulates of truth considered later, posited by some will-to-be-intelligible somewhat after the manner in which Professor Rickert conceives them? or are they stereotyped modes of reacting upon the given material of experience? or are they, as Kant conceives them, the conditions which alone make possible our experience such as it is?

The author could, no doubt, clear up these points by further elaboration. As the presentation stands, it is defective.

In part II., under the caption "The Truth Process," the author differentiates reflective thought from types of meaning of a simpler sort such as perception and associative memory, and from other forms of ideal synthesis, like thought, which involve ideal construction and organization by purpose, such as esthetic wholes; then, after pointing out the limitations of language as an adequate expression of thought, he criticizes some of the recent psychological work on thinking on the ground that the thinking investigated is not real thinking, but only association of ideas. Likewise the discussion with regard to the possibility of imageless thought is bootless since it is not the type of imagery which characterizes thought, but selective leading. The thought attitude implies the active leading or control of processes by a conscious, organized conative purpose. The conative leading constitutes the core of thought, not the imagery. Just as bootless is it to characterize thought by the feeling of effort which accompanies it, but may or may not come to consciousness. The truth process may now be defined more precisely, first with reference to its structure or morphology, secondly with reference to its content. The judgment, the forms of which constitute the morphology of thought, is presented as a fundamental unity of thought moments which starts with negation or the need of fresh adjustment, whether as the result of practical necessities or baffled curiosity; it proceeds through the trial stage of ideal construction and verification (hypothetical judgment), developing in advanced knowledge into the disjunctive schematization of alternates (disjunctive judgment): and its perching-place, after the long or short flight, is the adopting of a provisional scheme for conduct (categorical judgment). The concept thus becomes not the beginning of the thought process, but its terminus. It is the completed form of the categorical judgment at any stage of the history of thought—a conscious definition, a definite programme of action. Turning now to the problem of the content of truth, Professor Boodin accepts Locke's doctrine that the process of truth has to do primarily with the activity of relating. From the standpoint of *psychological* analysis, the attempt to analyze relational consciousness into kinesthetic images and sensations confuses the physiological concomitants and their sensations with the nature of the thought process itself. From the standpoint of *epistemological* analysis, we are confronted with the question whether these relations are to be taken as internal relations or as external relations, a question which plunges us into the controversy which has raged between the neo-realists and the absolute idealists. In solving this problem our author appeals to a principle, christened pragmatic, of which he makes large use in resolving other doctrines which appear to be mutually exclusive—the principle that we must acknowledge the universe to be what we must *take it as*. If now we accept this principle and appeal strictly to our finite experience only, we must take the universe as in part implying internal relations or relations of teleological significance; in part as capable of being taken in terms of external rela-

tions, or at least external to our finite and fragmentary purposes. The pragmatic movement has emphasized the function of truth in relation to life as a whole, the regulative function of thought in experience. But is this the whole story? Does not the truth process always presuppose also certain laws or postulates which, whatever their origin or significance in the structure of the real, must still be acknowledged if thought is to pursue truth? There are four such postulates: the law of consistency, the law of totality, the subject-object law, and the law of finitude. The epistemological necessity of these laws can only be proved by showing that, in the actual social procedure of thought, no instance which does not imply them can be cited without making truth impossible, which would show that they must hold for all cases of truth. They have ontological necessity only in so far as we admit truth as an ontological fact in the universe. Thought, then, we must conclude, is an activity of the will, predetermined as regards its form by certain presuppositions which are posited by the will to think. It is not the only activity of the will. The will may be instinctive in its activity, it may be perceptual, it may be guided by concrete images, it may dream. But when the will sets itself the task of thinking, whether for purposes of practical necessity or for the enjoyment afforded by the game of thinking itself, the will accepts or postulates certain norms, a constitution of thought.

In Part III., by way of introduction to the central problem of pragmatism, the criterion of truth, the author orients us into the movement by sketching its history "From Protagoras to William James." Things exist and are what they are because of the differences they make to human nature—this is the essence of pragmatism. In other words, we can only speak of those things as existent that make a difference to human nature, either directly as immediate experience (the contention of Protagoras), or indirectly as assumptions needed to account for such immediate experience as our perception with its microscopes and telescopes furnishes us (the contention of Plato). Pragmatism may be further defined as scientific method conscious of its own procedure; and if it be maintained that, in this case, it has nothing new to offer, it may be replied that there is always need of a renaissance of the pragmatic consciousness in science. If, now, we attempt to define pragmatism in terms of what it is not, we can show that it does not imply that the true and the useful always coincide; it is not equivalent to humanism, the doctrine that since reality must pass through human nature in order to be known, therefore the nature of reality is made over in knowing it: it is not committed to the instrumental point of view as regards concepts, for truth must always be imitative of its object to a certain extent; it does not necessarily fall on the side of realism except in so far as it intends a world beyond our finite cognitive purposes. Can there be any final distinction between meaning and validity? If we use meaning in the sense of pragmatic meaning—the difference which a situation makes to our further procedure, whether practical or formal—then there can be no final dualism between the meaning of a proposition and its truth. The meaning which molds itself on

the constitution of reality, which leads to the intended consequences, is precisely the *valid* meaning. Though both realists and idealists have joined in maintaining that truth is agreement with reality, they alike fail to break up reality and so fail to show the different meanings of agreement, according as truth is a copying process or an artificial device. Agreement *means* agreement only when we intentionally select with reference to the realization of some purpose. Agreement has a twofold significance: (a) the instrumental relation of the knowing attitude to its object and (b) that of sharing, to use a Platonic term. (a) In so far as reflective thought sets its own conditions, irrespective of the inner meaning of the processes to which it refers, aiming at prediction or control of the object as a means to its own purpose—in so far thought is instrumental. (b) But some objects of knowledge must be recognized as having a meaning of their own, a rational purpose and value which we must acknowledge. The fulfilment of our purpose here is conditioned upon partaking of an extra-individual realm of meanings, respecting them and sympathizing with them. Though it is universally recognized now that we must arrive at truth through our human purposes, though human nature with its purposive selection determines the *meaning* of the object, does it, as cognitive, determine the *existence* of the object? No: human nature contributes to nature the significant system of cognitive relations; it does not contribute existence.

In defining the relation between truth and its object in Part IV., the author develops his own standpoint of pragmatic realism. Realism is an epistemological attitude and has to do with the relation of the cognitive meaning to its object. Realism does not deny that objects to be known must make a difference to reflective experience. What realism insists is that objects can also exist and must exist in a context of their own, whether past or present, independent of the cognitive subject; that they can make a difference within non-cognitive contexts, independent of the cognitive experience of which the latter *a posteriori* must take account. In reply to the objection that to think an object is to think it as experienced, therefore it must be experienced—an objection based on the assumption that only like can make a difference to like—the realist insists that there can be different universes of experience which can make a difference to each other; and also that what is non-reflective or non-meaning can make a difference to our reflective purposes, or *vice versa*. Objects, then, enter into different contexts of which we may distinguish three types: the physical context, the social context, *my* context; and each of these contexts can make a difference to one another. In the two final chapters Professor Boodin paves the way for his promised volume on "A Realistic Universe" by making a plea for metaphysics and defining its three main problems, the problems of knowledge, of existence, and of value; and by pointing out the reality of religious ideals. These chapters are suggestive as indicating the direction in which this type of epistemology leads; they are not essential to the main argument of the book.

Professor Boodin agrees with the rank and file of pragmatists in

insisting on the conative, purposive nature of mind, in conceiving of truth as an affair of leading, in making the test of the real that which can make a difference to something else, in maintaining that reality is what we must take it as, in appealing to the immediate. It is primarily in his anti-humanistic and anti-instrumental doctrines that we come upon new points of view: in the distinction drawn between the two types of agreement, instrumental and sharing; in making significance a much narrower term than existence; in the emphasis on the various types of contexts into which the same object may enter. All these doctrines, be it noted, make for realism and away from idealism. The realistic motive dominates the volume.

The appeal to the immediate, usually under some such form as this: "The real is what we must take it as" (Cf. pp. 295, 301) is constantly made. But just what is meant by the immediate is left as vague in this argument as in all other pragmatic writings. In the early part of the book the immediate seems to be identical with the perceptual, as James tends to maintain; later on conceptual construction is included under the immediate; still further on in the argument the immediate is made to include that type of agreement known as sharing. Such ambiguity may make for a pluralistic outlook upon the world; it certainly does not contribute to clear thinking. It is to be hoped that the author will clear away in his later work the fog which as yet envelops the immediate.

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L'Année Psychologique. Edited by HENRI PIERON. Volume XX. Paris, Masson et C^{ie}. 1914. Pp. 545.

The twentieth volume of *L'Année Psychologique* contains 545 pages of finely printed material. There are six original *memoires*, six reviews or other minor contributions, summaries of 433 books and articles that appeared during the preceding year in the field of psychology and its related subjects, and several pages of news and notes of current events.

The original *memoires* are by Bourdon, Pieron, Foucault, Gramaussel, Decroly, and Toltschinsky. Bourdon contributes a 16-page study of the delicacy, persistence, and anatomical basis of our sense of rectilinear translation of the body as a whole. Experiments suggest that sensations of rectilinear movement and those of rotation are not furnished by the same sense organ. Pieron, in an 80-page discussion of the law of variation of reaction time, confirms the law of decrease in time with increase in the intensity of the stimulus for different modalities of sensation. The curve is hyperbolic, with determinable constants which are different for the different modalities, depending mainly on peripheral factors having to do with the transformation and diffusion of the stimulus.

Foucault attempts to determine the equation for the curve of work, and to discover the effect of different distributions of trials, in adding. Gramaussel presents pneumographic and plethysmographic records of an infant, taken during its first year, showing correlations between these factors and changes in the direction and degree of the infant's attention.

Decroly describes a new and interesting test, designed to discover and measure aptitude for coordinating complex ideas into a logical theme. Pictures, representing steps in some more or less interesting plot or episode, are presented and it is required that these be arranged in appropriate sequence, so that their story is correctly told. Records are given for groups of school children ranging from 4 to 15 years of age. Toltehinsky studied two point tactual discrimination and certain of its topographic features, under focal and marginal (divided) attention.

In the "Notes and Reviews" section Pieron has a discussion of the sensory memory of the octopus, one on sensation and perception in cutaneous discrimination, another on the Ewald chronoscope, and another on the problem of thinking animals. Wallon reviews and discusses Genil-Perrin's recent book on "Histoire de l'origine et de l'évolution de l'idée de dégénérescence en médecine mentale." Dufour presents two short notes on certain new questions of physiological optics.

Of the 433 articles and books received and summarized in the bibliographical section, 42 are on nervous anatomy and physiology, 51 on psychopathology, 65 on animal behavior and zoological aspects of psychology, 100 on sensation and perception, 19 on applications of psychology; the rest are distributed about uniformly among 10 other rubrics, covering the more general topics. The editor contributes a brief preface.

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JOURNALS AND NEW BOOKS

ARCHIV FÜR GESCHICHTE DER PHILOSOPHIE. April, 1914. *Kant und Epikur* (pp. 257-272): WILLIE SCHINK. Self-determined morality is for Kant the only end-in-itself. Both Kant and Epicurus teach the worth of a happy heart, but with Kant not pleasure, but duty is the driving force of moral action; and joy is only an accompaniment of the ethical life, not the end of living, as it is with Epicurus. *Eine Skizze aus der Philosophie Oesterreich* (pp. 273-287): J. K. KREIBIG.—Bernard Bolzano (1781-1848) was the most important philosopher writing in Austria during the first half of the nineteenth century. Deposed from his professorship by the Catholic church, devoted to philosophy and theology, and especially to mathematics, he developed in logic, among other important concepts, the type form *a* has *b*; in epistemology the doctrine of extra-psychological objects and truth; in ethics an altruistic, theistic utilitarianism; in esthetics a valuable critique of his predecessors and worked out the idea that the beautiful is that which gives, without the labor of thinking, an inner glimpse of the satisfying. *Zu Platon und Plethon* (pp. 288-294) J. DRÄSEKE.—Gemistus Pletho (d. 1450) in his "Laws" left at his death a work whose chief outlines appeared as early as 1415, when he had desired to reform his state. Following Blass, Dräseke holds that Plato's "Laws" were written for Sicily's need and dates them about 360 B. C. *Sokrates' Philosophie in der Darstellung des Aris-*

toteles (pp. 295-304): P. BOKOWNEW.—An account of the teaching of Socrates must start from Aristotle, not from Plato or Xenophon. Aristotle represents Socrates as the founder of induction, as the one who gives the definition of many theoretical aspects of ethics, and as a teacher who insisted upon the identity of virtue and knowledge. *La correspondance des genres du Sophiste, der Philèbe et du Timée* (pp. 305-334): L. ROUCIER.—The categories treated in the Sophist are those of the idea of being, in the Philebus those of abstraction, in the Timæus those bearing upon concrete existences. *F. P. v. Herbert* (pp. 335-344): W. SANGE.—An account of the manufacturer Herbert's (1759-1811) news on the Theocracy and suicide. *Rezensionen Die neuesten Erscheinungen auf dem gebiete der geschichte der Philosophie. Zeitschriftenschau.*

Drake, Durant. *Problems of Conduct.* New York: Houghton Mifflin Company. 1914. Pp. xiii + 455. \$1.75.

Rashdall, Hastings. *Is Conscience an Emotion?* Boston and New York: Houghton Mifflin Company. 1914. Pp. xi + 200. \$1.00.

Ruhe, Algot and Paul, Nancy Margaret. *Henri Bergson: An Account of His Life and Philosophy.* London: Macmillan and Company. 1914. Pp. vii + 245. \$1.50.

NOTES AND NEWS

SIR E. RAY LANKESTER writes as follows in the issue of *Nature* for December 14, 1914, concerning the death of the eminent scholar, Professor Ingram Bywater:

"On December 18 there died in his house in Onslow Square the greatest Greek scholar of our time. Ingram Bywater was remarkable for the fact that he was imbued with the scientific spirit, and pursued the investigation of Greek thought—what may be called 'the Greek thing'—in the true scientific method. He was in close sympathy with scientific men engaged in other branches of investigation, of the methods and results of which he had a remarkable understanding and appreciation.

"Bywater was born in 1840, and after early days spent at University and King's College Schools, became a scholar of Queen's College, Oxford; then, in 1863, fellow and tutor of Exeter College. On the death of Jowett in 1893 he was appointed by Mr. Gladstone Regius Professor of Greek. It was chiefly through Bywater's influence that Exeter College was led to offer in 1872 a fellowship in the competition for which biology was to be the chief subject. Huxley and Rolleston acted as examiners on behalf of the college, and I had the good fortune to be the successful candidate. My college rooms were adjacent to Bywater's, and we became constant companions and friends. We often discussed—when the college slumbered—the life and learning of the world and our own special studies in a tobacco-parliament of two during the small hours of the night. I learned more from him than I can say, and not only enjoyed his wise and humorous

discourse and his freedom from pedantry, but formed a warm regard for his fine spirit, his wide learning, and his intellectual veracity. When my fellow-student, Moseley—who had not competed for the Exeter fellowship owing to his appointment as naturalist on the *Challenger* expedition—returned from his travels, Bywater proposed that the college should elect him also to a fellowship, which was done.

“In 1885 Bywater married the second daughter of Mr. C. J. Cornish, of Salcombe Regis, widow of Mr. Hans Sotheby, a former fellow of Exeter College. The work of her nephews, Charles and Vaughan Cornish, is well known to scientific naturalists. Bywater was singularly happy in his marriage, and after the death of his wife in 1908 never recovered his strength and vivacity. He resigned his professorship, but still gave his services to the university in connection with the Bodleian and the Press. He lived among his books in his London house, where after my own departure from Oxford in 1898 I was his neighbor and constantly with him as in the old days at Exeter College.

“He had a most unfavorable opinion of the study of Greek as conducted under the examination and scholarship system at Oxford. ‘It is not Greek which they study,’ he said, ‘but an arbitrary and unreal creation of the examination system and the traditions of college tutors.’ He complained that when he was professor even those more serious students among the undergraduates who might have profited by his teaching were by college directors of study kept away from his classroom, as they were in earlier days held back from the lectures of Max Müller. Bywater published in 1880 a remarkable piece of research and discovery relating to the fragments of the Greek philosopher Heracleitus, which led to his election as corresponding member of the Royal Academy of Sciences of Berlin. He devoted many years to the criticism of the text of the “Ethics” and the “Poetics” of Aristotle, and in 1899 the Clarendon Press published his *magnum opus*, containing his recension of the text of the “Poetics” with an introduction, translation, and commentary. But the young college tutors had the power of directing their pupils ‘not to waste their time’ with listening to this great and original investigator, and, instead, to work up their Greek in the examination classes of the colleges; and they exercised it! Such is the mischievous result of the English university dry-rot—the examination system.

“Only a month ago when my friend had temporarily rallied from the illness which has now ended fatally, he discoursed to me in his characteristically cautious yet vigorous style of German (more especially Prussian) arrogance and intrigue and the boasted *Kultur* of the Germans. He said that the quality of their abundant work, never very high, had deteriorated since 1870, and contrasted their grasping and pretentious attitude at the International Conference of Academies in Vienna, where he represented the British Academy, with the charm and refinement of the leading Austrian delegate, Professor Suess, the geologist, now also gone from us, who, he declared, justified his name by the sweetness of both his nature and his behavior.”

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

THE MIND'S KNOWLEDGE OF REALITY

THE radical difficulty in giving an intelligible account of knowledge and in understanding its nature lies in the following dilemma. First, unless at some place the mind faces real being directly and immediately, and knows that this, its possession, is indeed knowledge, then no knowledge can ever be acquired. But second, all that is indubitably and immediately certain about any possession of the mind, anything immediately before it, is that it is not real being, but, instead, presentation, idea, content of consciousness. So that, if real being is ever to be known, it will be through some process of inference, representation, or interpretation. But how can knowledge emerge from a process in which, at the outset, there is no knowledge, but only ideas and presentations?

It is not difficult to see genuine motives and valid reasons for emphasizing each of these two theses. Consider the first of them. That somewhere real being and ideas must come together so that the mind faces real objects directly and immediately, expresses, at bottom, our confidence that the mind lives in a real world. That world may be anything you choose, but it is one which the mind must discover and obey if it would possess wisdom, sanity, and depth. Philosophy can never afford to be wholly scornful of the metaphors and analogies derived from the contact of bodily organism and physical environment. The directive aim of attention, focusing the energies of the organism upon some crucial spot in the environment where the organism and its world have direct commerce with each other, the outward going alertness and accommodation of sense organ, the always present stimulus and response, all of this means contact, presentation, immediacy. Can the life of knowledge escape such osmosis, such direct coming together of mind and real being somewhere? All this, of course, expresses the temper of realism and of dogmatism. The idealist has his reply and his criticism ready; but if the idealist has only criticism and refutation, he is likely to miss something of the solidity and depth which come from just that realistic confidence of being, at some point, in touch with reality,

receiving directly the tasks and the lessons given through that immediate contact.

It is possible to exhibit in a formal way the necessity for holding that at some place the mind must face real being with a primitive and undisguised directness, if knowledge is to be possible. I can not ascribe a predicate to a subject unless I first know what the predicate means, unless I already possess it as something which I know. And I have learned what the predicate means only because I have previously known some other predicate, and so on, *ad infinitum*, unless at some point I can stop with a predicate with which I have a direct acquaintance. But in any case, some knowledge I must have which is capable of standing on its own feet,—that is to say, which is direct, immediate, and unquestioned. Thus far, this is only to say that knowledge must have a beginning, and that beginning must be *knowledge*. That first knowledge must be *sui generis*, presentative, direct,—or perchance—*a priori*.

The first thesis of our dilemma may be made more concrete if we refer briefly to three types of knowledge, the discussion of which has been of central importance in the theory of knowledge, *i. e.*, the knowledge of past time, of other minds, and of the grouping or classification of the objects in our world. The difficulty about the knowledge of past time is just the central difficulty which our dilemma sums up. Unless at some place a past event can be known directly and not representatively, then no knowledge of the past can exist, for the very idea and meaning of past time would be lacking. Yet, on the other hand, whatever is directly and presentatively known is precisely present, *i. e.*, not past. It is the problem of discovering some original, or some *sui generis* possession of the mind which equips it with the meaning as to what past time is, which gives it a direct knowledge of the past. "What is the original of our experience of pastness, from whence we get the meaning of the term?", asks James.¹ His answer is that a "constant feeling *sui generis* of pastness" is an inevitable accompaniment of our experience, and in this direct contact with an immediate past, with the just now fading contents of the specious present, we learn what pastness means. Thus equipped, the mind can generalize and expand its knowledge, and read into its memory ideas a meaning of pastness which it has secured in this direct, first hand contact. We need not discuss this familiar view here; there are difficulties about it which have led some philosophers to say that the mind must have a direct knowledge of, an acquaintance with, a remote past in order really to know what pastness means.² The point is that a prior knowledge of what past-

¹ "Psychology," Vol. I., page 605.

² Thus Parker: "The Metaphysics of Historical Knowledge," Univ. of Calif.

ness means must be possessed by the mind before it can make a significant reference of an idea to a past event. And that prior knowledge must be at some place direct, primitive, and self-supporting.

Consider next the knowledge of other minds. The problem, the dilemma, is here more acute than in the case of knowledge of past events. For, we must here too be able to find something direct and primitive which equips the mind with the *idea* of another mind; but here, if we accept the usual and surely plausible view, no direct and immediate experience exists of any mind except one's own. The original of our idea of pastness seems provided for in the immediate experience of the specious present; there is no analogous immediate experience to serve as an original for the idea of another mind. It is, I take it, just this necessity for having some such direct original, if there is to be any knowledge of other minds, together with the empirical bias that experience alone can furnish us with our originals, that has led to the paradoxical thesis that I may have as direct an experience of another's mind as of my own. And the inadequacy of the traditional answer that we know both the what and the that of other minds through reasoning by analogy rests fundamentally upon the failure of this answer to make our knowledge of other minds sufficiently direct and immediate. For, unless there is lodged in the mind some idea of another, some hint that it would be wise to seek another mind, no amount of analogy and inference would avail to disclose the other mind. This failure and artificiality of the analogy theory is, I think, becoming increasingly recognized. Our communications with and responses to our fellow men are more intimate and intuitive than any dealings we might have with the inhabitants of Mars whose existence and whose nature would be taught to us solely through inferences based upon analogy. The problem then still remains. Where is the original for our knowledge of other minds? Excluding telepathy and neo-realism, experience can not furnish it, and inductive reasoning can not explain it. Yet *some* original it must have; to know what it means to live in a social world must be a possession of any mind which interprets some of its experiences as the expressions of another mind.

Consider, lastly, a third sort of knowledge. Every judgment implies a dichotomy. It rests upon a classification of the entire universe of discourse into the predicate class and the not-predicate class. To affirm that Socrates is mortal is to put him into one of the two classes of the universe which the judgment defines or implies, and thereby to exclude him from the other class, the immortal beings. Every judgment thus rests upon a knowledge of, and an ability to

Publications, Vol. II., page 105, "Immediate experience thus testifies that when we remember, we are again in the past."

apply the very idea of classification. The idea of classification, of category itself, is, it would seem, the most fundamental and primitive category. Just as we asked what is the original of our knowledge of past events and of the existence of other minds, so now we ask, what is the original of this idea of classification itself? What model has the mind before it, what prior possession and knowledge enables it to know and apply the idea of classification? It is in this way that M. Durkheim formulates the question in his interesting and important discussion of the relation between man's social and religious experience, and the categories of his thinking.³ The correctness of his answer does not here concern us so much as the way in which he states the problem, and his contention that the problem is genuine and inevitable. It is not sufficient, he points out, to refer merely to the many resemblances amongst objects to discover the original for the idea of classification; the perception of resemblances is one thing, the idea of class is another thing. A class is a framework exterior to and different from the objects perceived as similar; such objects are but illustrations of an idea, a meaning, which the mind must possess before it can classify resemblances.⁴ M. Durkheim rejects the answer that the idea of class is *a priori*; he wishes to maintain that the "indispensable model," the primitive acquisition of the meaning of class is furnished not by individual, but by social experience. It is because men are, and experience themselves as being grouped into social classes that they are able to group and classify the objects in their world.⁵ Man's social experience equips him with the necessary original and model for that dichotomizing of his universe of discourse which makes it possible to apply a predicate to a subject in a judgment. Social experience here performs the same function that direct experience of the fading portion of the specious present performs for our knowledge of past time. What it is that performs the analogous function for knowledge of other minds appeared doubtful. It is problematic because just as experiences of resemblances are not sufficient to generate the idea, the category of class, so mere observed analogies are not sufficient to generate the idea of another mind.

Thus far I have but illustrated the necessity for discovering somewhere a direct and primitive knowledge, if any knowledge at all is possible. Now there would be no dilemma and no problem

³ Durkheim, "*Les Formes Elementaires de la Vie Religieuse*."

⁴ "*Mais autre chose est le sentiment des ressemblances, autre chose la notion de genre. Le genre, c'est le cadre extérieure dont les objets perçus comme semblables forment, en partie, le contenu. Or le contenu ne peut pas fournir lui-même le cadre dans lequel il se dispose*" (p. 208).

⁵ "*C'est parce que les hommes étaient groupés qu'ils ont pu grouper les choses*" (p. 206).

about the possibility of knowledge if immediate experience were the point of direct contact between the mind and real being. If there were no difference between the mind's having immediate experiences, and the mind's possessing knowledge, the difficulty would disappear. For, in this case, in order to find some primitive and immediate knowledge as a starting point, something to reveal to the mind the very meaning of knowledge, and what it means to be real, it would only be necessary to point to some instance of experience, some act of perceiving or thinking, feeling or imagining. There are two varieties of such a coincidence, one-dimensional, monistic theory. Subjectivism is one variety; monistic or neutral realism is the other variety. That neutral realism and subjectivism are two species of the same genus, it is important to observe, for this reason if for no other, that the polemic of neutral realism against subjectivism leaves idealism unassailed. Idealism is of a different genus from that which includes the two species of subjectivism and monistic realism. Both of these latter views hold that the content immediately experienced coincides with, is numerically identical with, the object known as real. For both theories, knowledge means possession in experience. Both are philosophies of immediacy. The monistic realist merely adds that although the real object is completely possessed by the "mind" (the *word*, alas, must still be used!) when it knows an object, yet such complete possession is not at all incompatible with the independently real world *also* completely possessing the object, just as two brothers possess the same father. But, if there are valid reasons for doubting the coincidence of content immediately experienced, and object known to be real, then the dilemma is still on our hands. For the direct and primitive contact with reality somewhere which knowledge presupposes will, in that case, not be furnished by immediate experience. The immediacy of experience will no longer satisfy us. What reasons are there now for rejecting this principle of immediacy in either of its two forms? Of the various reasons which may be put forward for discrediting the claims of immediacy, I wish here to discuss but a single one. It has to do with some at least of the motives which, in the development of idealism and rationalism, have found expression in the concept of *a priori* ideas and *a priori* knowledge. In defending anything so seemingly formal and barren as *a priori* knowledge, I shall seem to most of my contemporaries to have placed myself beyond the region of profitable discussion. And there is very much, I confess, in this outlawed region which is uncongenial and repelling. It may be a bare echo of the *odium theologicum*, or it may be just the feeling that to confess a bias in favor of any concept or doctrine of the past is tantamount to running away from the firing line and entrenching oneself

in ground from which the smoke of battle has long since blown away. But the analogy is misleading. In philosophy it is all firing line, and the semblance of novelty and advance is just as likely to be misleading as the semblance of barrenness and formalism in the profounder concepts of tradition. That it is possible to give a fresh and reasonable statement of the motives which have led to the concept of *a priori* knowledge, I shall try now to show.

In order that knowledge shall exist, some direct contact of mind and real world there must be in order to teach the mind what it means to be real. At some place there must be some knowledge which is primitive and direct, standing on its own feet. So much we accept from realism. The motives which lead to rejecting the principle of immediacy are at the same time motives which compel us to define a knowledge of reality differing in kind from the presence of contents immediately experienced. And these motives are profound. One of them concerns us here. I shall first state the motive in question as a formal principle, and then proceed to give various illustrations of it, finally showing its use in solving the dilemma with which we started. The principle may be stated thus: Wherever a qualitative distinction is made within a given class of objects, there is implied a reference to something outside that class as a standard. A familiar instance in ethics furnishes us with an easy illustration. In a one-dimensional world of pleasures, it is impossible to distinguish between qualities of pleasure. The ethical hedonist must not say that one instance of pleasure is different in kind from another, superior, more dignified, or better than another. If differences of quality are to be allowed, it must be because there is something besides pleasure in at least some of the instances of pleasure, or because something not pleasure is available to serve as a basis and standard for the qualitative distinction. Again, consider the order of perceptions. It is obvious that if there are different kinds of perceptions, that which is the standard and basis for the qualitative distinction can not itself belong to the order of perceptions. Now hallucinatory and veridical perceptions are kinds of perceptions. That which serves to distinguish them can not itself be a perception, just as that which distinguishes a good and a bad pleasure can not itself be a pleasure. In a one-dimensional order of perceptions no qualitative distinctions, least of all no distinction of good and bad, true and false, can be admitted. The vain struggles of the neutral realists to show how error is possible witness to this difficulty. It is no reply to say that a true perception is one which coheres with other perceptions, for this implies that besides the order of perceptions, there is a standard of coherence and organization which serves to distinguish the true from the false perceptions. And, as Plato

showed in the "Philebus," a principle of order is not the same as the things which are ordered. This brings us close to our central thesis. Not only must there exist a standard of reference different from the class of objects amongst which qualitative differences are discovered, but knowledge of that outside standard is presupposed by any judgment which asserts the existence of such qualitative distinctions. I must know what dignity and goodness are before I can say that some pleasures are qualitatively different from others in being more dignified or better. I must know what coherence, or whatever the marks of a veridical perception are, before I can distinguish between true and false perceptions. In the interests of knowledge, now, do we, as a matter of fact, make any qualitative distinction within the one-dimensional order of facts immediately experienced? If we do, then both varieties of an immediacy theory are refuted, both subjectivism and monistic realism.⁶ It is not difficult to show that we do, and that, as a fact, to assert anything to be real is not identical with asserting the existence of something experienced. Whatever is immediately experienced is not real being, but is idea, presentation. One could urge here the "ego-centric" difficulty, the fact that the knower is inevitably implicated in all that he knows, by virtue of its being just *his* knowledge, or one could urge the universal situation which confronts every conscious self living in time, the inevitable disillusionment which follows the discovery that what at one time is thought to be objective and real, existing by nature, is later seen to be subjective, mere idea, existing not by nature, but by convention. But I pass these reasons by in order to emphasize another set of considerations which give valid grounds for denying the numerical identity of content experienced, and object known to be real. The considerations in question resolve themselves ultimately into the incommensurability of facts and values, existences and meanings. A content experienced, a presentation possessed by consciousness is an event, an occurrence, a matter of fact. It is an incident in the biography of the knower. But, to ascribe reality to an object is not to report a temporal and biographical incident. It is to assert that a biographical incident, besides being a temporal fact, is also *valuable* as an indicator and revealer of what is real. What the experienced content points to, what it aims at, means, what it is the vehicle of, not what it is as a fact, this is the important thing for knowledge. On their *fact* side, all experienced contents are mem-

⁶ I defer to another discussion the other type of realism, dualistic, which supposes that the mind has a direct acquaintance with an object, not a mental content, in its immediate experiences. Even this form of realism, represented by Alexander and Russell has in it the essence and the defect of immediacy. For here too the real object is said to be known to be real in an immediate experience.

bers of one class, are all on a level. A false or illusory experience is, as experienced fact, just as much a member of this one-dimensional order as a true and genuine experience. It is when we view the experienced facts with reference to their truth value, that our one-dimensional order of experience is no longer adequate. Here there is, once more, a qualitative distinction because a scale of values ranging from true to false, from real to unreal is involved whenever we believe in the truth and validity of our theoretical judgments. Hence the discrepancy and incommensurability of the order of experienced facts, and the world of real being. Complete identity remains impossible here to the very end. Epistemological monism, the denial of this discrepancy, would eventuate either in an Eleaticism in which there are no events because there are only meanings and truth values, or in a sheer, chaotic factualism in which there is nothing but incidents which occur, possessing neither truth, nor meaning.

The same discrepancy between the order of experienced events and the order of real being appears from a further consideration, namely, the dualism of subject and predicate in the judgment. It is not insignificant and not incidental that every judgment implies not a one-dimensional, but a two-dimensional order. A judgment means to affirm what is real, to ascribe something, some substance, relation or quality to reality.⁷ If knowledge coincided with presence in experience, immediacy, presentation, it would be but a single fact, a perception, or idea as a single event. But it is not this; knowledge means the making of judgments which ascribe something to reality. If a momentary sensation of light which flitters across the consciousness of an infant is an instance of knowledge, and not simply an event, it is because one could utter that event in the judgment, "this perception, this light, is of the real world." In thus uttering the event in the form of a judgment, something significant is added. The judgment when made is synthetic, not analytic. It lays claim to more than it just now immediately possesses. It appeals to something yonder; it implies the possibility of distinguishing between those experiences

⁷ Mr. Bertrand Russell has urged in various places the objection that not all judgments are of the sort which ascribe a predicate to a subject. A proposition that two things stand in a certain relation can not, he says, be resolved into a subject-predicate proposition (*cf.* "Scientific Methods in Philosophy," page 45). Of course when I say "this thing is bigger than that," "that thing" is not a predicate of "this thing," nor do I understand that this is what the advocates of the universal form of the subject-predicate judgment have wished to maintain. In the judgment in question, "that this thing is bigger than that thing" is a situation which is asserted to be true, a fact which is ascribed to the real, a predicate then. The whole expression, "that this thing is bigger than that thing" is the predicate, and reality is the subject. That this situation, this predicate is complex does not alter the matter in the least so far as the reference of a predicate to the subject, reality, is concerned.

which are and those which are not "of the real world." But, as we noticed above, in order to make qualitative distinctions within a given field, one must appeal to something which lies outside of just that field. The judgment which asserts that something experienced is real or valid, or "of the real," would lose all its meaning unless there were always present the possibility and the risk of our experiences not being of the real. The judgment that something is real—and all judgments are this—is a qualitative appraisal of something experienced. It presupposes an order, a standard, other than the order of experienced items. But, moreover,—and here we come to the crux of the matter,—not only does the judgment involve an appeal to an order of reality which does not coincide with the order of experience, but the mind which makes the judgment must possess a knowledge of reality which is not an awareness of its experience. Put the matter in this way: *experienced* objects announce themselves to the mind. They need no introduction and no credentials merely to pass for experienced objects. Not so with *real* objects. They can not announce themselves precisely because only some "I am here" of present experience can get announced, and present experience is not the same as object known to be real.

This prior knowledge of what reality means has not been acquired through any process the beginning of which did not contain anything in the way of knowledge. It is underived, unacquired, a function of the mind itself. Such knowledge can not have been acquired from experience, for that experience would, in turn, have to be known to be valid, to be real, and would accordingly require a prior knowledge of what it means to be real.

I have stated this in an abstract and formal manner. Yet herein, and not in any subjectivism or immediacy or romanticism lies, in truth, the heart of idealism. Plato is the father of idealism because, having shown the impossibility of defining knowledge as an immediate possession, as in the "Theætetus," he demonstrates the possibility and necessity of another order of immediacy in which the mind's knowledge is not acquired through any process of experience or anything else, but which simply *is*, the life and function of intelligence itself.⁸ That this knowledge of reality, the possession of which by the mind makes possible the whole life of reason, is nothing abstract, barren, intellectualistic, that it and it alone makes experience significant, that it even has something of the quality of mysticism about

⁸ Of all the contemporary realists who have laid stress upon the necessity of defining some knowledge as primitive, unacquired, immediate, Pritchard seems most completely to have sensed the implications of this contention. Cf. the following sentence from his "Kant's Theory of Knowledge" (page 128), "Knowing implies the ultimate or unoriginated existence of beings possessed of the capacity to know." This is Platonic—and idealistic.

it, need not here be discussed. Enough if it serves to solve, in outline, the real dilemma of our knowledge. We can now say both that knowledge of reality, of what it means to be real, is immediate and unacquired, that the mind and real being do confront each other, but the knowledge of what it means to be real is not derived from experience. If any object experienced is known as real, it can only be because the mind first knows what "to be real" means, and, thus equipped, finds an instance, an illustration of reality in immediate experience.

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SOME MEANINGS OF THE WORD IS

IF we take the term essence to designate inalienable ideal being, of which physical or psychic existence happens to realize a part, we may contrast the sense in which being is predicated of essence with some other senses of the verb to be; for there are many.

1. The copula properly denotes identity, not merely in the obvious case of A is A , but in cases where diversity of symbols or of approach disguises the identity of the object meant, so that the discovery of this identity may be important or surprising; as when we say "This is Odysseus," or "XI is 11," or "12 is 2×6 ." It is in this sense that being is proper to essence; everything *is* what it is. Whenever for the sake of emphasis we repeat a word, saying "No, No," or "Business is business," the effect is to detach and make indubitable the essence we mean, so that attention may be fixed upon it to the exclusion of circumstances, which do not alter essences.

In such expression of identity lies the most proper and literal force of the word *is*. Hence the term essence, derived from the same root, is well fitted to designate any ideal or logical nature, anything always necessarily identical with itself. Nothing else so truly *is* as character. By having character things can become candidates for existence; without character their existence would not differ from their absence nor from the existence of something else. Even after things lose their existence, or before they attain it, their character defines and distinguishes them in eternity, so that true and false assertions may be made concerning them, such, for instance, as that they do not exist. What an essence is it is always; and in so far as a thing changes its character it embodies a different essence and, however continuous its existence or persistent its substance, is "essentially" a new thing.

2. The copula is also used, in predication, to designate some prop-

erty in what has other properties as well, in the form *A* is *B*; a formula which, if being always means identity, would be self-contradictory. Wine is wine and red is red, but red is not wine nor (in the sense of identity) can wine be red. When we say it is so, we mean "has the color red." This use of the word *is* remains ideal and relative to character only; it does not transgress the sphere of essence, logically or esthetically intuited, but it marks only a part of the essence embedded in the whole. We see in this that essences may be complex, many essences being included in one, as the essence of red wine includes the essence red, and the essence red, perhaps, the essence extension. Every quality in actual or possible objects is a fundamental and separate essence on its own account. The fact that some essences are used by us as subjects and some as attributes in describing existing things is due to the actual constitution of nature, in which some qualities happen to be deeper and more constant than others, as the mass of a body is more constant than its position. In the realm of essence every distinguishable element, and every possible system of elements, is equally primitive and indestructible.

3. The word *is*, however, has another totally different acceptation when it means *exists*. Existence adds no new character to the essence it hypostatizes, since the essence of any existing thing is its full character; but the hypostasis is temporal and caught in a mesh of natural relations (as even one part of physical space is in contrast to any other part) to which the essence hypostatized is impervious. When the word *is* designates existence it claims for the object a place in some natural context, amid external variable relations, such as the essence embodied could not possibly have in its own dialectical and eternal medium. Whether such a claim is just can never be determined by analyzing the essence of what is said to exist, but only by exploration, through experience or evidence, of the flux of nature, until the essence invoked is discovered embodied in the suggested context: for it is idle to say that a thing exists or does not exist, if we do not say when or where. Existence exhibits things in a situation and with an emphasis which their mere essence could never have had. Things generate one another, and their flux, by catching the dye now of one essence and now of another, becomes varied and describable. Something *is*, in the sense of *exists*, when it figures in this changeful and selective illustration of essences.

4. The word *is*, in a looser sense, often serves to express the substance or origin of a thing, as when we say, "This spark is a firefly, not a star." Essentially a spark is simply a spark and a light a light; but in the natural world a light may be the effect or the appearance of many different things. A sure sign of this improper naturalistic use of the word *is* may be found in the phrase, dear to so-called critical phi-

losophers, "This is *nothing but* that." Thus we hear that a house is nothing but bricks and mortar, the mind nothing but a bundle of perceptions, God nothing but a power not ourselves that makes for righteousness, the material world nothing but a permanent possibility of sensation. Such assignments of specific origins or substances to the things of daily discourse might possibly be correct physically or historically: the whole substance, the full ground of what is analyzed, might be given in such an analysis. In fact, this sort of analysis is seldom adequate; in none of the four examples I have just given, for instance, is even the substance or origin of the things in question assigned correctly. But even if it was, the essence of each of them would have been missed and left standing, and in spite of the critic would remain the very essence that it always was. Things are never merely their whole substance nor merely their whole cause; they are what they are, having an inalienable physiognomy and essence of their own. To say they *are* what they are made of or what brings them about, when this is something wholly different from them in essence, is to use the verb *to be* in a confused and confusing way, although the poverty of language may render such speech inevitable.

Whenever, then, the word *is*, though used with literary propriety, seems to cover some ambiguity or (as in the ontological proof) to lend itself to some obvious fallacy, we have but to ask whether it is used essentially, meaning "is identical with this," or attributively, meaning "has this property among others," or existentially, meaning, "has a place in the flux," or naturalistically, meaning "has this substance or origin." If we substitute the last three phrases whenever they will fit, the cases in which the word *is* alone remains appropriate and sufficient will be those in which it serves to denote an essence, to give that essence a definition, or to call it by some synonym of its proper name.

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PROFESSOR HOCKING'S ARGUMENT FROM EXPERIENCE

THE purpose of this paper is to offer a brief examination of the fourth part of Professor Hocking's book, "The Meaning of God in Human Experience." Inasmuch as this part of his book is an essay in philosophical thinking, an examination of it comes fairly within the scope of this JOURNAL.

The substance of this part of the book is an argument for the existence of God based upon our experience of nature. The unique feature of Professor Hocking's undertaking is the attempt to find God by the pathway of cognitive experience alone; and that experience of the simplest type, namely, our experience of nature. He will not

disdain to seek God on the lower level of our perceptive knowledge of physical nature; and the thesis he seeks to establish is that this perceptive knowledge of nature is at the same time a knowledge of the reality of God. God is the only admissible meaning of our cognitive experience of nature.

The proposition Professor Hocking will establish is that the existence of God is as certain as our own existence and the existence of the physical world.

I propose briefly to state the arguments by which this doctrine is maintained, and then to give some reasons for my opinion that this reasoning does not reach its goal. And first, the argument of Professor Hocking.

Nature, as it shows itself in my experience, is a reality which is independent of my existence and it evinces a priority to my perceptions. "My mind depends on nature as nature does not depend on my mind." "This independence, priority and obstinacy of nature is not to be denied or minimized. It is just in this character of opposition to me and to my wishes, a high superiority to any doing or thinking of mine, that nature begins to assume for me the unmistakable aspect of other mind" (pp. 284-87). This character of nature presents a problem for thought, it calls for explanation. "Further examination of my experience with nature discloses the true character of my dependence on an Absolute other." "I am experiencing that other as other mind" (p. 288). My nature-experience is, therefore, an experience of other mind, in being an experience of physical things. As simply and directly as nature presents herself to me as objective, so simply and directly is the other mind presented to me as the actual meaning of that nature-object.

In another way my experience of nature compels me to recognize this other mind. My experience acquaints me with what nature is not, her insufficiency, her lack of self-dependence, error and defect, and the generally unsatisfying character of nature in my experience makes me certain of that other mind which must possess what nature lacks. This discovery that my world of cosmic reality falls short of my demand of the real world is due to what I must already know in the very experience in which this lack is present to me.

Now, in this matter of my knowing what nature is not, it is impossible that the standard of my judgment is itself a mere idea; for I can take this standpoint in idea only in so far as I at the same time take it in experience. This standard of reality by which I judge must be known to me in experience, my idea can be only a report of that experience. Thus, is the proof complete that in our experiential knowledge of nature is at the same time a knowledge of God.

I shall now give some reasons for my conviction that this proof

does not accomplish its purpose. Let me first advert to a distinction which is really of critical importance for Professor Hocking's entire undertaking; but which, it seems to me, he does not consistently recognize. In some places he appears to be well aware of it; in other places his reasoning proceeds on the assumption that no such distinction exists. The distinction I mean is that between experience itself and what experience means or indicates. Now, this distinction between experience and its meaning or explanation is vital to Professor Hocking's argument. Can he establish his thesis that God is *in* our cognitive experience in any other way than by so interpreting that experience as to show that God is what that experience necessarily means, that God is the only possible explanation of that experience?

Now, to admit interpretation or explanation, as a factor in experiential knowledge, is to admit thought as a mediating principle; and where thought enters, there enter alternatives in thought's outcome. If we admit there is not knowledge by experience until that experience means something, indicates something which is not mere datum, we have thereby admitted the possibility of more than one meaning of interpretation of experience; and we can claim truth for any one of these alternative meanings only as we are able definitively to exclude all other suggested meanings. Now, the situation we have in the cognitive experience of nature is one which presents alternative interpretations of our experience. Not fewer than four alternative explanations are here theoretically possible; and for no one of them, I venture to assert, can the claim be set up that it alone is the right interpretation. There is (1) the explanation Professor Hocking champions, and (2) there is the explanation of common-sense philosophy, the doctrine of realism in some form. There is (3) the explanation which makes nature-objects merely complexes of sensations in the common or social mind; and, finally, (4) there is the doctrine of agnostic or critical monism, which holds that the ultimate reality of nature is a type of being we need not identify either with what we take to be physical reality or with mind as we know mind, but some kind of reality which we may suppose to be the tap-root of both physical and mental being.

Now, unless Professor Hocking has shown beyond a reasonable doubt that his explanation of cognitive experience is the only one which the facts of experience will tolerate, he has not, I think, established his thesis. He has not proved that our experience of nature is at the same time an experience of God. The most that he has accomplished in this direction is to have shown that the positive characters of nature are not incompatible with such a conception of the deeper reality of nature.

If we turn now to that experience in which we discover the fail-

ure of nature to satisfy our ideal of independent and self-sufficient existence, it is evident that the reasoning by which Professor Hocking establishes the existence of God as the reality we must know in this experience proceeds on the assumption that the distinction I have said is vital to Professor Hocking's doctrine does not really exist. The underlying assumption of this part of the argument is that experience and idea are in subject-matter and scope identical, the idea being but the report of the experience. Now, this relation of idea to experience creates a dilemmic situation for Professor Hocking's argument. If that relation is one of identity, as one of his lines of proof clearly assumes, in the other line of proof,—that which sets out from our perceptive experience,—Professor Hocking has in reality presented no proof whatever; he has only given a description of our cognitive experience; he has merely made a series of statements about that experience, no one of which can claim objective validity.

I think the right conclusion of the matter is that Professor Hocking has not shown that we necessarily know God in our experience of nature. This somewhat novel attempt to open a pathway through our human experience to a transcendent and divine reality is hardly successful.

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SOCIETIES

THE TWENTY-THIRD ANNUAL MEETING OF THE AMERICAN PSYCHOLOGICAL ASSOCIATION

THE twenty-third annual meeting of the American Psychological Association was held in Philadelphia on December 29, 30, and 31, at the University of Pennsylvania, in affiliation with the American Association for the Advancement of Science and the Southern Society for Philosophy and Psychology. Joint sessions were held with Section L and with Section H of the A. A. A. S., and with the Southern Society. In addition to these joint sessions, Section L had an unusually full series of daily programmes, a larger number of the papers being of distinct psychological as well as educational interest. The meeting was well attended. About one hundred were present at the annual banquet and many not in attendance at that time appeared later.

Among the special features were the exhibit of apparatus and teaching materials, in charge of Professor Twitmyer; the report of the Committee on the Academic Status of Psychology, by Professor Warren; the demonstration and discussion of the introspective

method, led, by special invitation, by Professor Baird; the address of the president, Professor R. S. Woodworth; the address of the retiring vice-president of Section H of the A. A. A. S., Professor W. B. Pillsbury; the annual dinner and smoker; and the visit to Vineland.

At the annual business meeting Professor John B. Watson was elected president for the ensuing year, and R. P. Angier and W. D. Scott were elected to the Council, to succeed Max Meyer and Margaret F. Washburn. R. S. Woodworth, H. C. Warren, and J. R. Angell were elected to constitute the new nominating committee. The special committees on Class Experiments, Prizes, and Relations of Psychology and Medicine, reported progress and were continued. The report of the Committee on the Academic Status of Psychology was accepted, and its recommendations adopted, with slight changes. These are, as adopted:

“(1) That a standing committee of the association be appointed to continue the work of this interim committee.

“(2) That at the next annual meeting of the association some topic be chosen for discussion which bears on the teaching of psychology.

“(3) That the association adopt the principle that the undergraduate psychological curriculum in every college and university, great or small, should be planned from the standpoint of psychology and in accordance with psychological ideals, rather than to fit the needs and meet the demands of some other branch of learning.”

The report of this committee was presented in a printed pamphlet of 28 pages, copies of which were distributed during the meetings. A recommendation of the council was adopted, to the effect that a special meeting of the association, for the purpose of reading papers, be held August 2-7, in San Francisco, in connection with the Panama Exposition. A special committee, consisting of G. M. Stratton, Lillian J. Martin, and Warner Brown, was appointed to take charge of the arrangements for this special session. The question of the meeting-place for 1915 was left to the council with power, invitations having been extended from Columbus, Ohio, and from Ann Arbor, Michigan. It was voted not to accept papers for the annual programme unless summaries be sent with titles, before the programme is drawn up. The following were elected to membership in the association: I. E. Ash, Ph.D., assistant professor of educational psychology, Ohio University (Athens); C. H. Bean, Ph.D., late assistant professor of psychology, Indiana State Normal School; E. G. Boring, Ph.D., instructor in psychology, Cornell University; J. C. Chapman, Ph.D., assistant professor experimental education, College for Women, Cleveland; H. W. Chase, Ph.D., professor of

philosophy and education, University of North Carolina; P. W. Cobb, B.S., M.D., physiologist, Nela Park; H. T. Eno, A.B., LL.B., Princeton, N. J.; J. M. Fletcher, Ph.D., professor of psychology, Tulane University; S. Froeberg, Ph.D., professor of philosophy and psychology, Upsala College; K. S. Lashley, Ph.D., Johns Hopkins University; F. N. Maxfield, Ph.D., assistant professor of psychology, University of Pennsylvania; W. R. Miles, Ph.D., Carnegie Nutrition Laboratory; D. Mitchell, Ph.D., instructor in psychology, University of Pennsylvania; H. T. Moore, Ph.D., instructor in psychology, Simmons College; Josiah Morse, Ph.D., professor of psychology and philosophy, University of South Carolina; F. A. C. Perrin, Ph.D., instructor in psychology, University of Pittsburgh; F. O. Smith, Ph.D., assistant professor of psychology, University of Utah; T. F. Vance, Ph.D., assistant professor of psychology, Ames, Iowa.

At the apparatus and teaching materials exhibit were demonstrated a four-spindle color-mixer (G. F. Arps); an apparatus for testing visual sensitivity to contrast in animals (H. M. Johnson); an apparatus for serial exposure in memory experiments (E. H. Cameron); a puzzle-box, a new form of mirror-drawing apparatus, and a mirror frame for observing eye movements (F. N. Freeman); a demonstrational color-mixer and a universal puzzle-box (M. Bentley); a tachistoscope (F. C. Dockeray); a self-recording dynamometer (H. C. McComas); pictures of psychologists and proposed class experiments (E. A. Kirkpatrick); a new form of maze for human and animal learning, and a device for controlling and applying the stimulus in experiments on pressure sense (C. H. Bean); and outlines and manuals for applied, abnormal, and experimental psychology (H. L. Hollingworth).

The programme as a whole was characterized by lack of distinct specialization and by the complete absence of any Freudian titles. The most prominent topics were the learning process, mental tests, and analysis of the thought processes.

At the session for physiological psychology Thorndike's report of experiments on efficiency in performing tests under varied conditions of humidity, temperature, motion, and composition of the atmosphere provoked considerable discussion. The speaker reported that both gross efficiency and rate of improvement were found to remain unchanged with these variations. Changes in comfort were reported, which seemed to depend on heat rather than on stagnancy. Experiments now in progress are designed to study such factors as inclination, the effect of prolonged bad conditions, secondary effects, etc. Discussion centered about the various meanings of the word "efficiency," the possibility of undetected physiological results, and the general importance of work of this type. G. V. N. Dearborn, in

"Notes on Affective Psychology," advocated the abandonment of the traditional classifications of feelings and emotions and proposed a kinesthetic theory of feeling in which unrestrained impulses to movement were given special importance. S. I. Franz presented data indicating considerable variation in distribution of the motor centers of the brains of monkeys and cats. These variations show no relation to brain sizes and suggest the probable variability of brain organization. The data were also related to reports of similar effects from different lesions and to reports of variable results from the stimulation of the same cortical point. The paper led to general discussion of the limits of our knowledge of the facts of localization and neural functions. E. E. Southard gave a brief review of his work on the relation of hyperkinetic symptoms to lesions of the optic thalamus. New arguments were presented concerning the association of mania with irritative lesions of the hinder part of the cerebral cortex, the sensorial origin of hyperkinetic symptoms, and the peculiar value of the in-taking nervous mechanism for behaviorism. Special use was made of the concept of "decomplication," indicating a degenerative process which does not destroy the main nerve routes, but concerns mainly the collaterals and the "sponge" material. N. H. Harvey reported cases of paramnesia, with their common characteristics, distinguishing paramnesia from other memory illusions by defining it as a case of recognition without recall. Raymond Dodge reported on the selection of tests and methods used in the investigation of the effects of alcohol, conducted by the Carnegie Nutrition Laboratory. Special emphasis was given to the interpretation and significance of measures of work and reaction. A general report of the effects of moderate dosage on the tests selected was also presented.

At the session for mental tests R. M. Yerkes compared the results of the point-scale method of measuring mental ability with the results of measurement by the Binet-Simon procedure and announced plans now in progress for a universal point-scale in which the same tests may be used for all ages, and which, instead of giving a single coefficient, will analyze the mental characteristics into receptive, affective, reproductive, and thought categories. T. H. Haines discussed the advantages of the Yerkes-Bridges point scale as shown by the study of 200 delinquents. General agreement is found with the results of the Binet tests, but the point scale is more accurate for the lower and higher ages especially. E. K. Strong, Jr., had correlated the Binet measurements of 50 children, 10 to 12 years old, with their performance in five simple standard tests (opposites, form-board, etc.) and had found high positive coefficients. Thorndike, in this connection, reported other cases of similar results, from all of which he concluded that the Binet scale, while being a valuable test for

intellect as manifested in reacting to words and word relations presented orally, is no more general in character than various other tests. Rudolf Pintner gave the results of an elaboration and standardization of the Knox Cube and Feature Profile tests. In the Cube test useful norms were established for 5, 6, 7, and 10 years. The Profile test, as modified, was found to be a significant 10-year test. The Cube test, in particular, seemed from the discussion of Pintner's results to have been found generally interesting and useful. A. T. Poffenberger, Jr., in a study of "The Influence of Improvement in one Simple Mental Process upon Related Processes," indicated that (1) where there are no identical bonds between stimulus and response in the two processes there will be neither transfer nor interference; (2) where there are identical elements in the two processes or where a given process involves one or more bonds previously formed there will be a positive transfer effect; (3) where one test necessitates the breaking of previously formed bonds and the formation of new ones there will be interference.

Two sessions were held for experimental psychology. J. W. Baird gave a demonstration of the introspective method, selecting as his specific topic the process of arriving at a general concept or definition. Pictures of a hypothetical animal type were presented to the observers, who were asked, from time to time, for accounts of the contents and course of consciousness, for a definition of the objects presented, and for descriptions of the process of evolving this definition. S. Carolyn Fisher presented a paper setting forth the results of a more elaborate investigation of this problem. Generalization and abstraction are found to depend not so much on the presence of any particular content, but on the characteristic "behavior" of such contents as are present, the attitude taken toward them, their modes of development, readiness, etc. Samuel W. Fernberger finds that the comparison judgment is not characterized by any special structural content. Stages in the process of mechanization and development of the process of comparing are genetically traceable, marked by changes in adjustment, set, and direction of attention. Elizabeth L. Woods reported an experimental study of the process of recognizing, at different stages of its mechanization. Recognition is found to be relatively independent of such factors as structural content and affective tone. It is especially characterized by preparedness to recognize, perception of some clear feature of the stimulus, and appropriate reaction. The experience is entirely functional, a process or orderly sequence, rather than a moment with definite content. Christine Ladd-Franklin reported experiments by herself and Dr. Poffenberger, in which six to eight color discs are exhibited which are all practically equal in intensity and saturation, but just noticeably

different in color tone. With the proper choice of a series of colors they have found that all observers can distinguish between those which have and those which have not the character of blendedness. This leads them to reaffirm the distinction between psychologically unitary and psychologically non-unitary colors or color blends. Eleanor McC. Gamble's paper on "External Localization in Memorizing Verbal Material" the reporter did not hear, and no abstract was secured. Prentice Reeves, in studying individual differences in choice reactions among 59 subjects, found a positive correlation between simple reaction and association time, but none between the latter and choice reaction. No correlation was found between variability and tendency to false reaction; the correlation between right and left hand reactions was small. Kate Gordon's paper on "Memory for Musical Sequences" compared ability to memorize short musical sequences of tones, reversals of these sequences, and similar sequences of nonsense syllables. With most observers the musical material was more easily learned and longer retained. There is thus an indication that the musical sequence of tones constitutes a logical meaning or significant structure. Individual differences, correlations, and vocational suggestions were presented. A. P. Weiss reported preliminary experiments on the vowel character of tuning-fork tones, which support Koehler's law ("the quality series of the phenomenal tone system are limited by absolute supra-liminal differences and each octave is more than one octave distant"), providing the definition of "quality" be taken to be "vowel character." E. H. Cameron's results on the effects of practise on singing and discriminating tones indicated that good discrimination does not imply ability to reproduce, that practise decreases variation, that there is no transfer from practise in singing one tone to singing a different pitch, and that practise in singing tones of a given level is accompanied by improvement in discrimination at those levels which were practised. L. R. Geissler's experiments on the influence of expectation on sound localization disclosed, in quantitative form, the effects of different types of instruction and suggestion, and revealed various constant tendencies and individual and group differences. H. C. McComas, in studying fluctuations of attention to faint visual and auditory stimuli, finds no correlation with rate of respiration; correlation is found between variabilities in the cases of visual and auditory fluctuation; large individual differences are present; and there is found a tendency for fluctuations to increase during the sitting. The responsibility for many of the results of such experiments is assigned to suggestion. G. F. Arps described in detail an elaborate investigation of the influence, on ergographic efficiency, of knowledge of results, this factor being attended by an increase of

ten to thirty per cent. over the performance under conditions of unawareness of results. Garry C. Myers reviewed previous work and presented new data on "the obliviscence of the disagreeable." He suggests that the evidence so far adduced shows only the tendency to express the agreeable and to inhibit expression of the unpleasant, under the conditions of social constraint. K. S. Lashley's paper dealt with the characteristics of practise curves recording the acquisition of skill in archery, and comparing various methods of distributing trials. Short practise periods were found to yield better results than more concentrated effort, with fairly direct progression from the most concentrated to the most scattered procedure.

Animal psychology was represented by only three papers. R. M. Yerkes described a plan for arranging reactive mechanisms with identical problems, for a variety of animal forms. Photographs of some of these, in the form of serial arrangements of exits, for the study of pigs and crows, were exhibited. A. H. Sutherland described an attempt to study number perception in the dog, which was interrupted by the development of rhythm and position habits. H. M. Johnson reported a comparison of chicks, monkeys, and human beings in the discrimination of differences in the width of bands of illumination produced by a specially devised grating.

Under the general topic of abnormal psychology H. H. Goddard described two recent cases of criminal imbecility, pointing out the intelligibility which is contributed to such cases by psychological examination of the individuals concerned. E. A. Doll's paper on "The Value of Anthropometric Measurements in the Diagnosis of Feeble-mindedness" was the only other paper bearing directly on abnormal psychology, aside from those concerned with the application of mental tests.

At the joint session with Section L of the A. A. A. S., Stuart H. Rowe presented a series of questions concerning foreign-language teaching which seemed to be answered by various psychological principles or their more or less immediate applications. E. A. Kirkpatrick's finding of great differences in the relation of initial and final performances of individuals in practise tests led him to suggest that all who make practise tests give special attention to the question of these relations. S. S. Colvin's report of a preliminary study of learning to operate the linotype compared the case of experimental learning with the ordinary procedure, showed absence of transfer of spelling and punctuation skill from proof-reading to linotyping, and suggested the disastrous result of attempting to introduce a complex act of skill when the simple acts are not yet mechanized. Studies of learning curves of normal and abnormal children were also reported, and the suggestion made that a fruitful

field for the study of transfer may exist in the learning processes of the feeble-minded. M. E. Haggerty exhibited a set of learning curves and W. V. Bingham presented a set of norms for college freshmen. Bird T. Baldwin's paper gave the results of a consecutive study in mental retardation and formulated a method of approach from the psycho-etiological point of view, with particular reference to type cases of cerebrospinal meningitis. Margaret L. Cobb reported a study of family likeness in arithmetical abilities, based on examination of 20 children and their parents. Tentative conclusions were to the effect that a child may be expected to show the arithmetical abilities of either of its parents, but of one only, and this likeness is probably hereditary.

At the joint session with the Southern Society George A. Coe pointed out that functional analysis of mind requires a classification of functions, just as structural analysis requires a classification of elements. Various approaches to such a functional classification were compared and the speaker proposed a classification including eleven functions, grouped under the two heads, "biological" and "preferential." Paul R. Radosavljevich offered a series of corrective comments on the psychology of Slavic people. Madison Bentley described a method of studying and analyzing dreams, adapted to seminar use, and distributed outlines of the general plan. W. T. Shepherd reported on the results of a questionnaire sent to children and asking for expressions of their ideas and feelings on various religious conceptions. The papers of T. V. Moore on "Temporal Relations of Meaning and Imagery," Tom A. Williams on "The Craving for the Supernatural," and J. S. Harrison on "The Master Motive in a Theory of Knowledge in the Light of Evolution" were also read at this session. The reporter was unable to be in attendance during part of this session and failed to secure abstracts of these three papers.

The address of R. S. Woodworth, retiring president of the American Psychological Association, on "A Revision of Imageless Thought," sketched briefly the history and present status of the problem and abounded in fertile and systematic suggestions, based on recent experimental data. The address is to be published in the March number of the *Psychological Review*. An appropriation was voted to cover the cost of distributing copies of this address to members of the association.

The address of W. B. Pillsbury, retiring vice-president of Section H of the A. A. A. S., was on "The Function and Test of Definition and Method in Psychology," and was a plea for the greatest liberality and freedom in the use of both definition and method. The speaker urged that definition and method should grow out of

the actual work of the science, rather than be determined by any *a priori* considerations. This address is to appear in *Science*.

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REVIEWS AND ABSTRACTS OF LITERATURE

Education and Psychology. MICHAEL WEST. London: Longmans, Green, and Company. 1914. Pp. viii + 341.

West's "Education and Psychology" is distinctively a book of the present day. It reflects a sociological point of view in educational theory, but one that has grown reflective and self-critical, demanding a specific correlation between known facts and working institutions. It recognizes the need of industrial education for the workman, but a form of industrial education that attempts to tally with the principles of sound pedagogy and lives in peace with the demands of the workman's leisure hours. It utilizes the results of psychological experimentation without consciousness of novelty; and, instead of presenting the data of good, bad, and indifferent experiments and leaving the bewildered and incompetent reader to choose conclusions for himself, it shows the author accepting the function of the expert and simply telling what he considers to be significant results. In it our old friend of the text-book in education, the controversy over formal discipline, has been coldly treated as a self-evident fallacy; the Boy Scout movement comes in for notice as a phase of education that deserves attention and supplementation or curtailment; and here and there one reads the influence of Bergson.

The book covers a wide field of educational problems and might well be called "Theory of Education" or "Principles of Education" instead of the more limiting "Education and Psychology." The treatment begins with a description of mental functions and proceeds to the selection of a course of study and the organization of a system of schools. But the name which the author has chosen for his book is thoroughly justified by the fact that the general educational principles that he establishes are based upon the descriptions of mental life that form the major portion of the work.

Mr. West insists most vigorously that the existing programme of education in the English elementary schools is directly contrary to that which his examination of the boy's mental life would show to be logical and practicable. It is exclusively a programme of literary studies that aims to prepare the boy for enjoying leisure time and to change the producer into the governor. The boy is sent out into life totally unprepared to take his place in the workaday world, and, by reason of his social position, is unable to exercise fully and freely either the arts of leisure or the functions of the governor. As a result, the schools turn out inefficient workers and inefficient citizens. The time of the boy's life when he is interested primarily in doing things is from about ten to thirteen. But during that period he is kept at literary work. Better reverse the order and give the

boy during this period a great deal of practical work, introducing along with it the scientific controls and the information that aid him in doing the work with intelligence. West's plan provides for two or three years of general instruction in fundamental arts and processes, along with unspecialized manual work, in a school which he calls the kindergarten. After the age of ten is reached, the boy goes to a preparatory trade school, where he is taught something about all of a half dozen occupations that are represented in his local community. After three years of work in this school, during which he is led to drop such trades for which he shows little ability and to specialize more and more narrowly in such work as he enjoys and in which he shows skill, he enters a trade school. Here he specializes for two years in a chosen trade, with a final year of very specific work that is designed to fit him definitely for a place in the industrial life of the community. In case he shows special ability in the scientific side of the trade, he is allowed to go to a technical school, where he spends three years, getting to work at seventeen. In case he shows very marked ability he is encouraged to take a university technical course, thus going to work at twenty. During the entire period of technical education, West would have the boy carrying on, according to his tastes, some definite studies of the liberal sort—art, literature, pure science, pure mathematics, non-technical history. The liberal phase of his education is to be entirely separate from the technical. The trade school is to be controlled by commercial ideals; the liberal school, by cultural. The former is to teach him to earn a living; the latter, to enjoy his spare time and to establish for himself an outlook upon life. In its essentials, a similar plan is to be adapted to those boys who wish to go into commercial life and into the professions.

For one who lives in America, where the doors of professional opportunity, while gradually closing, are yet open to all aspirants, and where there is extreme fluidity of social groupings, Mr. West's full acceptance of the *status quo* and his apparent desire to make even more rigid the walls of class distinction, seem rather hard. It must be said for his plan, however, that some balance of opportunity and ability is provided, since that boy of the working class who shows pronounced ability is given a university education, while the inefficient member of the governing class who does not possess professional ability, finds his level in trade or business at seventeen. At all events, Mr. West's plan proposes to avoid his twin aversions, the Oxford business man and the Hyde Park statesman.

The book closes in a minor key. It may be that the elaborate plan of education, outlined above, is Utopian and impossible of achievement, owing to the boy's lack of ambition and the limitations of the school. In that event, let the boy become the drudge, the man capable of performing one part of an industrial process; let him pick up his education for the business of breadwinning as he is able; and let the school apply itself to achieving a little more happiness for the worker after the untrained drudgery of the day.

Among the possible deficiencies of the book is the treatment of intuition in Chapter Three. Likewise questionable is the logic of separating

from the control of intellect as widely as Mr. West does, the development from instinctive to social-minded action. Certainly intellect is no less an instrument in the winning of a socially-expressed life than it is a tool in the interest of earning a living. It seems, too, that great attention should be paid to the correlation of manual skill and artistic feeling in any system of industrial education, even if only in the interest of greater industrial efficiency. And, finally, the book is exclusively about the education of boys. We shall welcome what Mr. West may say in the future about the education of the other half of society.

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Il Valore Supremo. LUIGI VALLI. Genoa: 1913. Pp. 313.

This very readable treatise begins with an introductory metaphor in which duty is compared to a speaking sphinx. Life surrounds man with innumerable sphinxes, mute mysteries, but among all these is a sphinx more powerful than the rest which has a voice and which says, "Thou ought and thou oughtest not." Since it is impossible to eliminate this mysterious fact of duty we must investigate it. The idea of duty rests upon the idea of value, and to this, therefore, the author addresses himself.

The first chapter treats of the psychological fact of valuation, which is defined as the recognition of value or the attribution of value (or of want of value) to an object or state or act of any sort. We do not affirm value of anything without thinking of some desire or tendency as being directed towards it, but the valuation of an object is not to be confounded with this affective-volitional excitement which attaches to it. If, in experiencing desire or aversion for an object, we also feel that our desire or aversion is permanent or will be renewed in the presence of this object, then, and only then, do we attribute value to the object. In other words a real or a supposed constancy or uniformity of affective-volitional moments toward the object is necessary. Valuation has much the same relation to these individual moments of desire that the conceptual image has to the particular images.

The second chapter discusses "The Assimilative Force of Valuation." Valuation includes, as it were, the records of past attitudes and the prevision of future attitudes towards an object. This consciousness of a uniform reaction tends to give to our will a certain stability, that is, there is an assimilative power in the valuation process. This assimilative or attractive force does not reside in the object itself, but rather in a tendency in us to follow or comply with what is large or important or general or powerful. As the author develops this conception it is not quite identical with imitation, but might be called a tendency to fall in with large issues. There are three moments of such compliance—first, the external and mechanical imitation of the acts of others; second, sympathy which is an imitation and assimilation of the sentiments of others; and, third, the imitation of valuations, that is, the tendency to give values to the same objects that others do. Moral obligation is but one example—a special form—of this assimilative force. Moral obligation is felt only

when the external assimilative object is of a certain importance and when it offers some opposition to our immediate impulses. The moral impulse is disinterested; it can not be reduced to any egoistic need unless to the need of feeling oneself in harmony with a larger reality.

Part two deals with the distinction between absolute values and derived values. Absolute values are those which are attributed to an object for its own sake; they are intrinsic like esthetic values. Derived values are instrumental only—they contribute to some further object. It is not always easy to tell the absolute from the derived values, and hence a number of pseudo-intrinsic values find currency. These pseudo-intrinsic values are ones which seem to the individual consciousness to be irreducible and final, but which can be shown in the light of scientific research to be instrumental to some end. Thus, in the satisfaction of the fundamental instincts, the pleasure seems to the individual a final value, but biology shows that the enjoyment contributes to further ends, has a functional use. The author's position is that a value which is explicable in functional terms can no longer be called intrinsic.

Our life shows a rhythm between two tendencies, the one is to "project" our values, *i. e.*, to conceive any desirable thing as absolute and eternal in its appeal, and the other tendency is to reduce or explain away these values. This projection is in effect a process of generalization. We assume that our values will be permanent and we incorporate them into our ideal state of existence, just as the savage makes his heaven a place for the prolonged gratification of his food, sex, and hunting instincts. The desire for personal immortality, says the author, is one such projection. The self-preservative tendencies have a certain social use, but we go too far if we assume that there is no limit to that use. When the mind apprehends the function and the natural objective limit of its values it tends to restrict them, and to recognize that the satisfaction of wants, and even that one's personal existence, are but instrumental values. This projection of values and impulses does not stop altogether when we recognize it as such, but it becomes attenuated, lowered in tone, and is called by us esthetic activity.

Now if any value can be found which seems to consciousness an absolute value, and which can not be shown by science to have an assignable function, if there is any trend in our lives, any direction of events which is at once comprehensive and inexplicable, then this will be the supreme value.

Part three investigates the claims of various values to be viewed as the supreme value. Human personality, justice, benevolence, wisdom, liberty, temperance, all these can be shown to have functional use; they contribute to the continuance or efficiency of life. Even virtue is not the supreme value: it is but the abstraction from concrete virtues and these have instrumental worth. Nor, by the same test, can pleasure be supreme. Life itself would seem to be the final value. But what life? Not that of the individual, nor even that of any given society which now exists. The author is content to stop with the future life of the human race. This,

then, is the supreme value, and the duty of man lies in furthering and intensifying that life.

KATE GORDON.

BRYN MAWR COLLEGE.

JOURNALS AND NEW BOOKS.

THE PHILOSOPHICAL REVIEW. September, 1914. *Responsibility* (pp. 489-505): HENRY RUTGERS MARSHALL. — Examines the relation of responsibility to guilt. The conception of responsibility is not based on accountability, as is commonly supposed, but on authorship. There is no such thing as irresponsibility. Guilt is a special case of responsibility. Accountability is necessarily attached to guilt, but not necessarily to other forms of responsibility. *Pragmatism and Truth* (pp. 506-524): WARNER FITE. — The pragmatists and their critics are involved in the disjunction that either truth is determined by our needs or is independent of them. Against this it is shown how truth may be both the satisfaction of our needs and independent of our needs by presenting the facts of science, not as absolute and hard, but as responses like those we get from fellow beings. *Bergson's Conception of Duration* (pp. 525-539): G. WATTS CUNNINGHAM. — Elaborates two objections to Bergson's conception of duration as basic to the reality of time, namely, "that the conception is by its very definition irrational," and that "it is based upon a one-sided analysis of conscious experience." *The Pragmatism of Pascal* (pp. 540-549): NORMAN WILDE. — "Nature, instinct, feeling, the heart, life, the spirit, faith—it is these anti-intellectualistic catchwords that come oftenest from his pen, and it is to recall and reinterpret these concepts of his in the light of modern tendencies that this paper is offered." *Reviews of Books*: F. H. BRADLEY, *Essays on Truth and Reality*: GEORGE H. SABINE. Rudolf von Jhering, *Law as a Means to an End* (translated by Isaac Husik): MORRIS R. COHEN. Alexander F. Shand, *The Foundations of Character. Being a Study of the Tendencies of the Emotions and Sentiments*: WILLIAM K. WRIGHT. André Fauconnet, *L'Esthétique de Schopenhauer*: RADOSLAV A. TSANOFF. *Notices of New Books. Summaries of Articles. Notes.*

Ash, Isaac Emery. *Fatigue and Its Effects upon Control*. Archives of Psychology, No. 31. New York: The Science Press. 1914. Pp. v + 61.

Carr, H. Wildon. *The Philosophy of Change*. London and New York: The Macmillan Company. 1914. Pp. xii + 216. \$1.75.

DeMorgan, Augustus. *The Life and Work of Newton*. Essays. Chicago: The Open Court Publishing Company. 1914. Pp. xiii + 198. \$1.25.

Painter, George Stephen. *The Philosophy of Christ's Temptation*. Boston: Sherman, French, and Company. 1914. Pp. 333. \$1.50.

Russell, Bertrand. *Our Knowledge of the External World as a Field for Scientific Method in Philosophy*. Chicago and London: The Open Court Publishing Company. 1914. Pp. ix + 245. \$2.00.

NOTES AND NEWS

The following announcement, bearing the signatures of seventy-seven members of the General Organizing Committee, has been received, postponing the Congress of Philosophy, which was to have been held in London in September.

"To Members of the Fifth International Congress of Philosophy:

"The war in Europe has made it impossible to carry through the arrangements for the Fifth International Congress of Philosophy, which was to have been held in London in September, 1915. Before July of the present year (1914) the arrangements for the meeting had, to a great extent, been completed. The leading universities of many nations had appointed delegates, and a very large number of distinguished Continental and American scholars were preparing to take part in the proceedings.

"In announcing the necessary abandonment of the arrangements for the Congress of 1915, we, members of the General Organizing Committee, desire to express an earnest hope that the confederacy of the entire philosophical world, which has subsisted since the inauguration of the series of Congresses in 1900, and seemed to have attained the rank of a permanent institution, will not be set aside for a longer time than outward circumstances render absolutely imperative. We are confident that the common interest in philosophy which has expressed itself so effectively in the past meetings of the Congress will prove to be an enduring bond.

"We are returning the subscriptions of members as the Congress can not be held at the time appointed. But we pledge ourselves, as soon as possible after peace is restored, to promote with all our power the continuance of this international bond, either by renewing the invitation to meet in this country or by obtaining an invitation from a neutral country."

PROFESSOR JAMES McKEEN CATTELL has brought out the first number of his new weekly, *School and Society*, published by the Science Press, Lancaster, Pennsylvania, and edited from Garrison, New York. There are 36 pages and the number is unusually agreeable to the eye and to the hand. Leading articles are by President Emeritus Charles W. Eliot, whose address, "Educational Evolution," delivered on the occasion of the inauguration of John H. Finley as Commissioner of Education of the State of New York, stands first in the number; G. Stanley Hall, whose article on "Teaching the War" deals with the different attitudes of public schools toward conveying information about the war and emphasizes the unusual opportunity provided by it for teaching history, geography, and politics; William T. Foster, whose article, "The State-wide Campus," discusses the state university and the democratic conception of the whole state as a campus and the whole population as students. The remaining twenty-eight pages are devoted to Educational Events, Educational Notes and News, Discussion and Correspondence, Quotations, Books and Literature, Educational Research and Statistics, and Societies and Meetings. Single copies of the journal are ten cents each, and the annual subscription is \$3.00.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

AFFECTIVE FACTORS IN RECALL¹

A FEW years ago in an attractive article, entitled "Oblivescence of the Disagreeable,"² Hollingworth stated that "the canonization of saints, the apotheosis of strenuous historical characters, the obituaries of our friends, the reminiscences of childhood, all testify to this natural and universal habit of forgetting the bad and exalting the good." After citing a number of examples, referring to Colgrove's conclusions that the pleasant memories predominate over the unpleasant ones, and briefly epitomizing some Freudian doctrine, Hollingworth concludes: "The fundamental fact back of all this is that the disagreeable does oblivescence to a more striking degree than the pleasant. In art, in pedagogy, in penal procedure, in long-deferred criminal trials, and in daily life, the principle is everywhere apparent. Even in reasoning, the gratifying, confirmatory instance sticks in the mind, while the negative cases all go glimmering into oblivescence."

Later E. N. Henderson replied to Hollingworth:³ "The memory of a disagreeable experience may be agreeable, disagreeable, or indifferent." He then reports an experiment on 10 college students, each of whom was asked to relate a hundred incidents remembered in his or her life. Then each was asked to grade these incidents as agreeable, disagreeable, and indifferent. He found 55.1 per cent. of the answers were scored as agreeable, 11.8 per cent. as indifferent, and 33.1 per cent. disagreeable. He points out that the subjects perhaps tended less to name disagreeable experiences; that they probably failed to give accurately the feeling of their original experience; and that probably in the lives of most of us the agreeable incidents far

¹ The writer acknowledges his indebtedness to Miss Maude Beck and Mr. Geo. Replege, students in the writer's class of psychology (1913-14), for conducting the experiments in schools A and B, respectively, and for aiding the writer in the tabulation of the original data; especially to Mr. Replege who, by not following the regular instructions of the experiment, discovered the value of a short period of time for writing the random lists.

² This JOURNAL, Vol. VII., pages 709-714.

³ This JOURNAL, Vol. VIII., pages 432-437.

outnumber the disagreeable. He concludes that his figures give a negative answer to the question, "Do we forget the disagreeable?"

In the following study the chief emphasis was placed on a determination of the relative tendency to remember the thing best liked and that liked least. In all, 232 subjects from normal school, high school, and grades were tested. They were asked to write random lists of names of familiar things, such as colors, musical instruments, animals, fiction, famous women of all time, famous men of all time, etc. Then they were asked to write the name of the thing liked best of each of these classes of objects; then, the thing liked least.

Three forms of the test were given: *A*. Pupils of School A from high school to 4th grade were told to write as quickly as possible the names of 20 foods, 10 animals, 10 colors, 10 books, 10 musical instruments, and 10 persons. Then their papers were collected, and they were instructed to write on another sheet the name of the food liked best, without regard to whether it appeared in the random list or not. When that was written they were told to write the name of the food liked next best, and so on to the 4th like; likewise with animals, colors, etc. Then they were asked to write the name of the thing disliked most, or liked least, of each of the classes given (that of persons excepted).

B. Pupils of School B, high school, and 7th and 8th grades, were asked to write as many names of the several classes of objects as possible in a given time. The time (about one minute interval) was called when the subjects began to look about and to show hesitancy. The subjects were asked to select from their random lists the name of the thing liked best and that liked least. Three minutes had been planned for the random list, but in order to adapt the experiment more nearly to the programme of the school the experimenter limited the time as noted above. The advantage of this briefer time is obvious, for it eliminates the more disparate and chance associations. Furthermore the briefer random lists secured thereby avoided some unnecessary drudgery in handling the data.

C. Since test C (on the normal school) was given last, the writer gave the subjects only one and one half minutes in which to write each random list. These lists were, the names of foods, animals, works of fiction, famous women of all time, famous men of all time, and famous living Americans.

The records show for all three tests that the thing liked most, on the average, appears much nearer the first name in the random list than the thing liked least. Likewise the percentage of dislikes not included is always much higher than the likes not included. Without exception in all random lists, the percentages of cases of the first-like are predominantly above the median and those of the least-

like, below. For example, by school A the first-like, on the average, appeared as number 2.8 in the random list of ten names of animals; the fourth like, as number 3.9; and the least-like, as number 7.4. For color, the respective numerical positions were, 3.0, 5.5, and 6.4; for books, 3.9, 6.0, and 6.5; for musical instruments, 2.1, 3.0, 7.3. Not one omitted the first-like from the random list of animals; 9 omitted the fourth-like, and 27, the least-like. For colors, the respective figures are, 2, 8, 9; for books, 8, 16, 15; for musical instruments, 0, 5, 15. The numerical position was chosen as the measure here because the number of names in the random lists was constant (ten names). Since there was no way to determine the exact position of the first-like and the least-like not named in the random list, a conservative plan was adopted whereby such were counted as appearing one place below the last named in the random list. Therefore, because so many more of the least-likes than the first-likes were omitted from the random list, the position of the average least-like as indicated by the figures is far higher than the actual position. In schools B and C the position of the first-like and the least-like were located with reference to the median of the random lists. In these schools the random lists were limited by a definite time for their production and not by a definite number of names. Consequently, the lengths of these series varied rather widely, and, therefore, the distance from the median was relatively a more intelligible standard than the numerical position.

By 72 per cent. of the boys of school B the animal liked best from among those named in the random list appeared above the median of the list, and in only 43 per cent. of the cases the least-like from among the random list was found to be above the median of the list. On the other hand, by 20 per cent. of the boys, the first-like was below the median and the least-like was below the median in 44 per cent. of the cases. Furthermore, the first-like stood first in the random list for 31 per cent. of the boys, the least-like for 8 per cent., while the first-like appeared last in the random list in 5 per cent. of the cases and the least-like appeared last in 18 per cent. of the cases. The records for the girls were practically the same as those for the boys, *i. e.*, there was no appreciable sex difference.

As in school A no exception was found to the rule that in all random lists, of colors, foods, etc., the average position of the least-like is always lower than that of the first-like. Moreover, the average position of the first-like is always above the median, from one to two places; while with a few exceptions the average position of the least-like is below the median. But the total-average distance of the first-like above the median for all the random lists is much greater

than the average distance below the median of the least-like. The total-averages are, + 1.6 and —.5, respectively.

On the average, for all the random lists, by both sexes together, the first-like was named first in the random list by 32 per cent. of the cases and the least-like by 8 per cent.; while the first-like was named last by 5 per cent. and the least-like by 17 per cent.

The records of the 73 normal school students almost unanimously endorse the results obtained from schools A and B. However, the percentage of cases whose first-like appeared above the median of the random list was about the same as the percentage of cases whose least-like appeared below the median. It will be remembered that in school C the two choices were made regardless of the random list.

Comparing the positions of the first-like and the least-like in reference to each other, one finds in school A that the least-like appeared below the first-like in the random list of animals, for example, in 84 per cent. of the cases, while the first-like appeared below the least-like in 12 per cent. of the cases. The respective figures for school B are 69 and 31; for school C, 79 and 18. On the average, the least-like is 4.9 places below the first-like for school A; for schools B and C it is 2.2 and 4.4, respectively.

Variability from the numerical position was computed for school C, which shows, on the average, an a.d. of about three places for the several things, and about as great variation for the likes as for the dislikes. Likewise the average number of random names given by this group was found to range from 6.7 to 15.5. It is obvious that the larger the group from which the random lists were selected the greater the length of the random lists; for example, the average number of famous women named was only 6.7, while in the same time 10.4 famous men were named.

It should be noted that while the normal-school girls were asked for a random list of foods, most gave specific names for each; but in naming their first-likes there was such a tendency at vagueness and generalities that the writer abandoned his attempt fully to classify the data. For example, 9 out of 71 named "fruits" as the first choice of foods, 21 named "vegetables," while practically all these specified certain fruits and vegetables in the random lists. However, one finds no such predominance of general classes of dislikes. The highest was "fatty things" by four cases, and three named "soups." This difficulty was scarcely noticeable with schools A and B. Probably the stronger and more numerous habits of short-cut methods and classification by the normal-school girls may offer some explanation. Tendency to generalize was slightly shown in reference to fiction; a few stated that they liked or disliked a certain author's books,

for example, while they specified definite names of books in their random lists.

A study was made of the number of different items named as chief-likes and least-likes by 71 normal-school girls, with the following results:

	No. Item as Greatest-like	No. as Least-like
Animals	9	24
Fiction	53	52
Famous women	27	23
Famous men	22	28
Famous Americans	31	23

By the 64 children of school A the respective figures are: for foods, 27 and 32; for colors, 13 and 9; for musical instruments, 8 and 11. One could not say from these records whether people vary more as to their greatest-likes or as to their least-likes. However, there seems to be a difference in the distribution of these items; the leading item liked most appeared much more frequently on the whole than the leading item liked least. For example, "dog" was the foremost first-like of animals (by 23 cases) and "snake" the foremost least-like (by 18 cases). For fiction the respective figures are 5 and 5; for "famous women," 26, 18; for "famous men," 36, 16; for foods, 9, 6; and for colors, 23, 9.

Apropos of the statement made above that the least-like is more often omitted than the first-like from the random list, is the fact that "Benedict Arnold" named by one out of four as the least-liked American was given in the random list by only three cases. Such names that call out strong emotional distastes seem especially to ob-
livesee.

Of course it has been assumed in this study that, as a rule, when one writes a random list of names of things one will tend to write down first those words most readily recalled. All other things being equal, it is safe to assume that the words which will first come to mind are those which from habit most readily offer a response to the situation, "Name-of-animals, etc." It must be admitted, however, that many obvious factors interfere in such tests as the above, and that when one writes a random list, each word when named tremendously aids in the determination of the next word to be recalled, so that as one would expect, one finds in the records many cases where the appearance of a name obviously suggested a whole group of names. However, one would expect these difficulties to be about evenly distributed among the first-likes and the least-likes.

The difficulties noted above would be especially true where the list of words were written slowly or showed selection; therefore a brief time assigned for the random lists seems desirable. Further-

more, limiting the chief-likes and least-likes to the random list contributes so much in the handling of the data, that in the long run, it seems to be the superior method. If the subjects were unexpectedly called upon for these random lists a second or a third time after a few weeks' interval, the reliability of such lists could be pretty accurately determined, and some interesting records on personal consistency could be obtained.

In addition to the stated test given in school C, the writer finally returned the random lists and asked the subjects to grade by numerals the order of preference of the names of the several lists, and to indicate with which number their dislikes began. But so many names were assigned the same rank by each subject, that these records were of little value. It would be a simpler method to have the subjects, after stating their chief-like and least-like, in general, select from their random list their chief-like and least-like, and finally to have them cut their random lists in slips and arrange these slips in order of preference, indicating where their dislikes begin. Thereby one would have three mutually corroborating tests, and a definite record of the number, as well as the order of the likes and dislikes, recalled in the random lists. At best, one can only hope to show general tendencies.

In conclusion it seems safe to assert that, as a rule, one tends to recall the thing best-liked more readily than that least-liked. From this it is pretty safe to infer that one tends to remember the agreeable rather than the disagreeable. However, in the interpretation of the above data and in the conclusions drawn by Hollingworth from his striking examples, it has been taken for granted that what one expresses is the measure of what one remembers, and that what one does not express is the measure of what one forgets. If we were not social creatures and subject to social constraint, this assumption would be safe. But we are social creatures and have social memories. What we recall at any particular moment is partially determined by the social import of that part of our experience recalled. Certainly what we express of our past experience at any particular moment is selected by our social relations at that time.

Our natural tendency to please others and to win their consequent approval makes us select from our experiences those things which we consider to be most agreeable to our audience and spectators. In reference to the immediate ends those experiences selected for expression will, perhaps, always be most agreeable to us; but independent of the end, *i. e.*, in and of themselves, they may not be agreeable. Indeed, they may be positively disagreeable; for example, a bit of experience which in recall has always been disagreeable to me, may, when related to another, give me a very agreeable experience at

the moment of my telling, if it elicits an agreeable response from my audience, especially if the desire for such a response is uppermost. But this relating of the experience need not make the once disagreeable experience permanently agreeable. *Per se* it may be as disagreeable to the relator as ever. The individual and the social values of our experiences do not necessarily coincide.

The "canonization of saints, apotheosis of strenuous historical characters, obituaries of our friends," etc., as cited by Hollingworth, are instances of social memories. No one would argue that social memories are composites of individual memories, that the records and traditions of what we call our history are merely sum-totals of all individuals' memories. Probably it would be safer to say that the social impress left by earlier times is a resultant of social perception and expression rather than a sum-total of selective individual memories.

The first account that went to make up what we know about the past depends foremost on the facts and qualities attended to by the first recorder and narrator. What he related depended upon what he had perceived and what his social ideals made most agreeable for him to relate. What he perceived, in turn, was partially determined by his fellows. Therefore the selectiveness of his perception, and most of all the selectiveness of his record and narration, were socially determined. In other words, the social group largely determines what we shall perceive to be related and determines what we shall relate.

As to "the obituaries of our friends," of course we write and say the most agreeable things we can recall. We seek for comfort then and we know our fellow mourners seek for comfort, too. We exalt the virtues of the dead because it gives us comfort first to think upon their virtues; then this in turn reflects much comfort in the comfort it contributes to our fellow mourners. It is not a matter of memory so much as a matter of expression, for well we know that even while we search for most agreeable memories of the dead many disagreeable memories will often haunt us.

And so with nearly all the instances that Hollingworth relates there obtain so many complex social factors that while on the surface these instances seem to be proof positive of a "universal habit of forgetting the bad and exalting the good," yet all they do prove is that we tend to express the agreeable and neglect and inhibit expression of the disagreeable.

While in the make-up of the random lists in the writer's study the social factor does not always seem to be so prominent as in Hollingworth's examples, yet in the last analysis, the writer's data only

show that the agreeable more readily finds expression, as a rule, than the disagreeable.

Of course there is biological evidence to make one believe that memories tend to vanish into oblivescence when they lose expression; and probably in the long run memory and expression are commensurate. However, it must be remembered that all types of past experiences seek expression, whether good or bad, in spite of their repression. The psychoanalysts have done much to emphasize the fact that while one strives to check and to forbid expression of one's disagreeable experiences, the latter tend somewhere to find expression, as in dreams, for instance. And so while Hollingworth calls Freud to support of his theory, Freud here can well be cited to show the fallacy of Hollingworth's assumption.

Furthermore, disagreeable things become things to be avoided. In all learning it is well to remember the unsuccessful and consequent disagreeable reactions so they will not be repeated. In the welfare of the individual, in all social progress, it is very essential and most natural to remember, in order to avoid, the useless and the hindering responses. The fact then that we avoid and neglect to do some things does not necessarily mean that they have been forgotten; on the other hand, it may be conclusive proof that they have been remembered. Henderson put it well: "We forget not so much the disagreeable ideas as useless ideas."

Finally, if the assumption upon which this study was pursued is valid, the rule obtained by the writer's figures holds good only for about 80 per cent. of the subjects tested. How about the other 20 per cent., especially those whose least likes were named first in the random lists? Probably in these cases the disagreeable in the former experiences were attended by rather strenuous emotional disturbances which contributed toward a wide variety of neural discharge, therefore increasing the possible connections or associates with other things which might be more vital and much more agreeable; so that in the recall, the wide number of by-associates would increase the possibility of recall of the obviously disagreeable. The question still unanswered is, How far does one's silence measure one's forgetting and how far does one's expression measure one's recall?

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SOCIETIES

THE JOINT MEETING OF THE AMERICAN AND WESTERN
PHILOSOPHICAL ASSOCIATIONS

THE American and the Western Philosophical Associations met together at the University of Chicago on December 28, 29, and 30. This, the fourteenth meeting of the American Association, was the first occasion on which these two societies have met jointly. The present writer feels that he needs no authority from either association to express high appreciation of the hospitality of the officers of the Quadrangle Club, who performed the difficult feat of entertaining at the same time the members of several scientific bodies.

Owing to the distance of Chicago from eastern centers, the majority of those attending the conferences were members of the Western Association. Abstracts of the papers presented are given below.

Individuality through Democracy.—GEORGE CLARKE COX.

It is important to emphasize the value of individuality, not merely as opposed to the social unit, but as an end in itself. The conception of the individual was largely that of Professor Warner Fite, modified by the philosophy of Avenarius, which does not demand self-consciousness of the individual, but merely complete self-expression. As a simple matter of fact, all men do seek their own will, not the will of the group.

There are two sharply contrasted views of the proper relation of the individual to the state, viz., the Teutonic view, which is also Platonic and aristocratic, and the Anglo-American view, represented by Spencer, Mill, and Fite. This is truly democratic in that it does not impose any will upon any other. It is tending to be obscured to-day in America by state socialism. Dewey and Tufts seem to emphasize the view that, in the final analysis, man lives for the group. This is denied as a matter of fact.

Democracy consists, not in any specific form of constitution, but in that temper which would set free every individuality to be itself in so far as this is consistent with a like freedom for all others. Greater values thus develop than under any conception of man's relation to his group; but even if they did not, there would be no way of stopping the democratic movement. The submerged and terrorized individualities of the greater part of mankind are emerging. No man whose equal participation in group activity is denied can feel any group responsibility. Every man flouted by his group has a good case against it.

But because of the undeniable fact of the inequality of natural en-

dowments, true democracy does not produce leveling, but differentiation and opportunity. Moreover, far from destroying the state, the growth of individuality is the only sure guarantee of its permanence, since there will be no suppressed wills.

Men are in danger of forgetting the highest of all values,—self-direction. Utilitarianism, apparently democratic, is essentially aristocratic in the bad sense—it suppresses minorities. The true individualist is concerned for other individuals, not from altruistic motives, but to guarantee himself against suppression; and he is not wedded to any form of the state, but is opportunist and Fabian in policy.

Democracy and the Melting-Pot.—H. M. KALLEN.

A review of the historic conceptions of justice shows that Plato's, in the Republic, envisages its essence. Plato's elaboration of the conception assumes a homogeneity of race which no longer holds and a limitation of the nature of the individual which never did hold. When, however, the modern psychological conception of individuality and the modern ethically diversified political state are substituted for Plato's assumption, the Platonic conception of justice becomes identical with the modern conception of "democracy."

The meaning of "democracy" has passed in modern times through three phases. Based originally on the doctrine of "natural rights" which makes the *fundamentum divisionis* of the Declaration of Independence, it begins by an abolition of all differences in the conception that all men were created "free and equal" with the right "to life, liberty, and the pursuit of happiness." Politically this principle was expressed in the doctrine of "one man, one vote"; economically, in the use of free land and the conception that "America is opportunity."

The second phase of the meaning of democracy came with the transition from agricultural to industrial organization, from rural to urban populations, from homogeneity of origin and tradition to diversity of origins and traditions, from a comparatively uniform distribution of wealth to the present very unequal distribution. In this phase the conception of democracy is socialized. Its attention is no longer fixed on the individual, but on the machinery of government and the distribution of wealth. It tends toward an increase of central police power on the one side, and toward the increase in the flexibility of political power on the other. It still insists that government is an instrument aiming at the welfare of the governed and that the machinery of government must be such (*i. e.*, party government) as to be easily abandonable when it proves inefficacious. But it tends in practise toward the suppression of individualities, the centralization of power, and the hypostasis of instruments. Recent

reform movements, *i. e.*, the progressive party, illustrate this. In this stage "democracy" is instrumental and corrective, not intrinsic in its significance.

There are signs of the development of a new phase in the meaning of "democracy" which may lead to a restoration of its intrinsicity. This phase turns on the rise to consciousness of factors long present in the state life of both Europe and America, but obscured in America by the scope of industrial enterprise, the ease of communication, and the "miracle of assimilation," in clothes, manners, and newspapers. It has led to the conception that America is a "melting-pot," the womb of a newer and happier race, etc. But in fact nothing could be farther from the truth. The urban and rural populations are stratified,—first of all geographically, the layers of the races of Europe following the streams of migration westward; then, industrially; different nationalities follow different employment, and finally, socially, the upper classes being in the long run identical with the earlier comers.

All these ethnic groups have a distinct physical and cultural heredity and even when they are mobile they mix hardly more than they mix in Europe. Americanization follows the laws of imitation and is on the whole superficial. Those immigrants who brought national self-consciousness with them, persist in it, *e. g.*, Irish, Creoles, Poles, and French; those who acquire it here look back to their European homes. Anglomania is paralleled by Teuto-mania, Gallo-mania, etc. Lost connections are resumed, new ones are established. In political forms, social activities, and cultural interests the country is as diversified and as homogeneous as Europe. This is seen best in the character of education in different sections of the country, for example, Massachusetts, Wisconsin, and Minnesota. The school system, which should Americanize, becomes expressive of the cultural background of the majority of the citizens. America is to-day a theater of a "warfare of cultural ideals." The older tradition—of the New England School, Mark Twain, Walt Whitman, and Bret Harte—no longer dominates. Germanism, Scandinavianism, Gallicism, Hebraism, are competing forces and have their local centers within the boundaries of given geographical regions of the country and states in the Union.

The United States is, in fact, *states*, a federation of politically and ethnically diversified peoples, who as they become more prosperous become more self-conscious and nationalistic. All in all, this is as it should be. "Opportunity" can be only opportunity to realize one's capacities. These are determined by heredity and look back both historically and psychologically. The freedom of self-development implied in the Declaration is now conceived as the freedom of a *social self*, this self is at its broadest efficacy ethnic. Spiritually the

democracy of America tends to become a democracy of nationalities, each seeking, in cooperation with others, the perfection proper to itself. Such a democracy is, however, an exemplification of the Platonic principle of justice. Economic and legal considerations are secondary to it, as they represent means, while it is the unconscious *goal* of the peoples of the United States. Primary and coordinate with it is the question of education, as Plato points out, and the problem of justice should find its solution first through that, once the goal has been established, rather than through the economic and political changes. In house-cleaning, it is necessary to have a clean *inside* first of all.

Justice and Progress.—H. B. ALEXANDER.

The conception of justice is grounded in the compromise of conflicting ends. The product of active justice is harmonization and adjustment. The correlative passive quality is obedience to law, divine or human, the recognition and observance of rights. The logic of justice may be made out by considering the custom of judicial thought. Such a consideration discovers three general maxims, which form, as it were, the presuppositions sought for; first, justicial reason must be teleological in form, organized, that is, with reference to aims recognized as authoritative by the judicial mind; second, justicial reason must define attainable ends; third, justicial reason rests upon the assumption that all proper desire is for the good; the ends that judicial decisions define must be felt to be good. From these three axioms a single philosophical assumption emerges. Law is an expression of faith in the indefinite amelioration of man's nature and this assumption of human progress is to the logic of morals what the assumption of the uniformity of matter is to science. Both assumptions are articles of faith, but each is the foundation for all the rationality possible in a whole department of thinking. Justice in individual cases of what is due this man or that is the individual's equity in human progress. To say this is to point out at least that justice belongs primarily to man's theoretic nature, and that it may find its satisfaction not in the gratification of the passional or appetitive soul, but in that of the intellective. Only when life and life's situations are made reasonable to man is justice attained.

What can Philosophy Contribute to Conceptions of Justice?—H. A. OVERSTREET.

The paper contrasted the hitherto prevalent view of justice expressed most sharply in the principle: to each in accordance with what he can afford, with the view increasingly in evidence: to each in accordance with his needs. The first view took it for granted that, with

the removal of the feudal distinctions, all fundamental needs could be met through the efforts of the individual. The more modern view realizes that there are numerous needs which are incapable of being fulfilled save through cooperative action. Hence an increasing expression of the principle that where needs can not be fulfilled through individual effort the obligation is upon society to devise means for their cooperative fulfilment. In laws governing conditions of labor and habitation, in accident-compensation laws, in provisions for public education, etc., society is organizing itself for the cooperative fulfilment of individual needs. There are vital needs, however, which society has not yet institutionally recognized; for example, the need for adequate medical aid, for equal access to legal advice and assistance, for full participation in economic processes and rewards.

With the principle, to each according to his needs, must be placed its correlate: from each according to his realized capacities. Modern society commits flagrant injustice inasmuch as in many cases it demands of its individuals far more than the development of their capacities warrants, as, for example, in the demand for citizenship which it makes of child-labor adults, motherhood of untrained girls, thrift and industry of wage earners exploited and devitalized. A just state will raise the capacities of its citizens to the level of its demands.

The problem of justice, then, involves essentially the discovery of the fundamental needs of human personality. This is the peculiar problem of the philosopher. Economics, political science, and jurisprudence have suffered from inadequate conceptions of personality. It is for the philosopher to contribute to modern discussion his profounder and more comprehensive understanding of the function and scope of the human individual.

Private Property and Social Justice in the Light of Social Psychology.—W. K. WRIGHT.

Collectivists and many other advocates of social reform maintain that the extensive substitution of public for private ownership of property is a demand of social justice. In opposition it has been urged that collective ownership is opposed to "human nature." But what is "human nature" in this connection? We must look to social psychology for an answer. The aggressive assertion of ownership is instinctive, and preceded the appearance of collectivism in early group life. Collectivism is, therefore, not more "natural" to man than private ownership. But while acquisition is instinctive, economy, like other moral virtues, is a matter of development. Moral evolutionists are agreed that the race first acquired the virtues of justice and benevolence within small personal groups and later ex-

tended them to larger circles of humanity. The child likewise first has to learn to be just and benevolent in home and school. The virtue of economy is subject to the same laws of development. A democratic society, therefore, can only become economical on condition that its citizens are successful in the management of private capital. The moral virtues necessary to successful public ownership of a considerable proportion of productive wealth can be acquired by society on this condition. Society will then be able safely to undertake many of the various forms of amelioration proposed by socialists and others, such as approximate equality of education and other forms of opportunity, insurance of every one against sickness, accident, unemployment, old age, and death. Pragmatism, whose full significance in this connection has not been understood by Walling, can be construed in favor of the positions of this paper. The aims of social justice and the right to private property are, therefore, compatible, and they may both be secured in accordance with the psychology of human nature. Only that society could be called truly social in which every individual enjoyed free opportunity to develop his personality in every important respect, including a liberal education and the acquisition of private, income-producing property.

The Injustice of Punishment.—ELLSWORTH FARIS.

“The just man is he who takes in the whole of a situation and reacts to it in its wholeness.” Punishment is a voluntary inflicting of suffering against the will of the punished. It must be done in a formal manner and by the group to which the punished individual belongs. In formal punishment the personality of the punishing agency is divided. There are two groups appealing for recognition and their claims are antagonistic, and so the spirit of him who punishes is divided against itself.

A social reaction is one of three—immediate, abstract, or concrete. The immediate attitude is the primitive form of reaction. The savage has a definite type of behavior toward his own family, whatever they may do, and another very different attitude toward his enemy, quite independent of what acts they perform. The abstract attitude involves the construction by the imagination of some conceptual explanation of a difficulty. Thought builds a bridge across the chasm of experience. This type of reaction characterizes formal punishment. There is always a mathematical equation. “*Lex talionis*” is of this type. It is not true that “*lex talionis*” was the primitive form of reaction, for restraint, calculation, and abstraction are essential to it. Punishment includes the placing of the offender in a definite and previously defined category. The concrete attitude is alone completely social. It consists in the assumption of the

rôle of another. It is the putting of oneself in the place of another. All three types are useful and necessary in our social dealings. They become unjust only when they are improperly emphasized. Abstraction, being the neglect of something essential, is unjust if made relatively permanent.

Formal punishment is a perpetuation of an abstraction, the denial for a term of years that normal human relations are any essential part of the offender. It, therefore, emphasizes the evil instead of remedying it. Punishment is unjust, but that does not necessarily mean that it should be immediately abolished. It may be that it is the best we know and that it will be necessary to perpetuate the injustice for a time. But it would be well to admit it. It would be better to change the word and the aim to correction and remedy. The law is administered by officers representing the force of the state. Correction would be under the direction of scientists representing the skill and intelligence of the state. The juvenile court and the boys' court are illustrations of the possibility of taking official cognizance of theft and crime with no thought of punishment.

The Duplicity of Democracy: Democratic Equality and the Principle of Relativity.—A. H. LLOYD.

Equality, basal to all democracy, has been too much of a dogma, having often been taken absolutely instead of relatively, that is, as applying to all actual and possible conditions of life instead of as only contextual and as dependent for its actual meaning on some historical situation. Again, democracy and its equality constitute no mere end, final and intrinsic; they are but the means to some new purpose developing in the life of the time of their rise. However good in itself, democracy is also good for something *else*.

Thus the democracy of the contract-philosophers, when judged by historical context, was primarily *anti-militaristic*. The "natural rights" claimed, life, liberty, and the pursuit of happiness—this last being translated into the safe possession of property—were only such rights as militarism had been signally interfering with; so that men were to be leveled only with respect to the differences of the traditional military aristocracy; and such leveling was for the actual purpose of creating among men equal opportunity in the newly developing life of commerce and industry. So was one aristocracy to be succeeded by another.

The succession, moreover, was to be, as on the whole it certainly has been, in so far as it has been accomplished at all, evolutionary, not revolutionary. Industrialism, in other words, far from being the mere supplanting of militarism through an anti-militaristic democracy, has only been its control, its being made a life to self, as we say

of children learning to read to self, and then its positive *mediation*, its employment of force and mechanism or system being made to depend on exploitation of natural or physical forces and resources instead of, as before, on the forces and resources directly embodied in human beings with all their personal feelings and interests. Our present developing industrialism—or is it now developed?—may be spoken of as militarism vicarious in the natural environment or as militarism dehumanized and objectified. *Mediation*, I mean the development of anything in life into a freed means or instrument of life, requires what, however clumsily, I am here calling dehumanization and objectification.

In further illustration of the mediation accomplished by democracy, history shows militarism itself, even that of imperial Rome, depending on democracy, albeit on its own very specific democracy, on a democracy whose demanded equality of men was only “spiritual.” Men were equal rather for not having any earthly ties or relations than for having such. They were equal in their Stoic apathy, their skeptic’s imperturbability, their religious—in good time Christian—faith and “resignation.” For the historically later *earthly* content of life, liberty (of course liberty of person), and property, men’s quality had to wait on achievement, even on the achievement of the then military aristocracy.

A third illustration may be seen, as certain views of the present day suggest, in the rise or the expected rise of a new and anti-industrialistic democracy. Such a democracy would mediate a new aristocracy, for which I here venture no name. Only the anti-militaristic rights of life, liberty, and property would be supplanted by, or developed into, such *new* natural rights as—the names are hard to find—useful occupation, the freedom of an educated skill, and the unhampered enjoyment of all the now so well developed social machinery. More concisely, work, education, and facility of commerce are the new earthly content with which an anti-industrialistic democracy would back equality.

To summarize so far, in general the democratic cry for equality at any time and in any context evidently must refer to fairly well and fairly generally established conditions, to a traditional type of life, the opportunities of which must have been widely realized by mankind as well as effectively exploited, and it must imply that its demand for equality is for the sake of the free development of some new type of life, of life under a new valuation, the old type being made by the equalization, by the dehumanization and objectification, only mediate to the new type. So, besides democratic equality being relative and contextual and besides the mediation of it, besides its positive mediation of a new aristocracy, in democracy or in the life

of society in which the demand for democracy appears, we see also a certain duality or—because democracy has not usually been candid as to its own purposes—a duplicity of life and interest. This duality or duplicity, moreover, involves distinct difference *in kind*; since the passing and the rising aristocracies, between which the democracy stands, are objects, respectively, of attack and ideal endeavor, or, again, are different as means and end are different. Indeed the duality here seems very comparable with that of the material and the spiritual and, like it, must be understood as a moving or functional duality, not a metaphysically fixed one; being fixed only in principle, not in content or application.

How, now, are democratic leveling and mediation accomplished? Only by socialistic measures. Socialism should not interfere with pioneer life in any field or on any plane, where competition and rewards to the best are important, but it seems both necessary to progress and humanly just when applied to already well-developed ways and instruments of life. Unfortunately many people are socialistic without any thought of the mediation, just as many are democratic without thinking of the relativity of the equality.

Democracy, we may conclude, is no mere name for specific eras or for particular forms of local political organizations. Democracy is one of the two ever-present motives in all social life, aristocracy being the other.

But, now, changing the viewpoint a little, the nature of democracy and its demanded equality may be seen in the conditions and results of all conflict. Witness such things as fair play, balance of power, armed neutrality, rules of the game, agreement as to weapons, and so on. Conflict, incident to all aristocracy, tends to balance or equalization, both parties or all parties learning of each other, methods and powers thus becoming distributed; and, accordingly, the outcome is, or at least always tends to be, a drawn battle. The drawn battle, however, means more than control and suspension of certain ways of fighting; it means also, besides this negative result, the positive benefit at once of mediation of these ways and so of the development of new ways, involving greater self-control and a new system of values, for carrying on the conflict. So *in conflict* may democracy be seen as lying between a passing and a rising aristocracy.

From all of which finally may be now extracted, in addition to things that need no further specific emphasis, two things of at least mentioning importance. Thus: (1) Specific "natural rights," whenever a basis of democracy, must have been achieved, or earned, not given; and they always differ according to the aristocracies between which the democracy lies as mediator; and (2) Peace has worth, not as a final cessation of all fighting, but as the means to a

higher type of life's battling. "Democracy is no golden age; but the gold of all ages, which some new aristocracy is ever ready to spend and, spending, to enjoy."

The Conflict of Moral Ideals.—EVANDER BRADLEY MCGILVARY.

Two motives have stood in the way of the acceptance of the relativity of morality; the fear that thereby morality would lose its authority, and the desire to act on unquestionable principles. This fear is ungrounded if morality stands for human interests, for it is these interests that will always give to morality its authority. An ideal is not a cold idea; it is an idea of something desired; it is heated in the flame of passion, else it were no ideal. A moral ideal is a glowing vision of conduct and of social life such as we wish to see realized. It is our longing for it that converts it into a dynamic force. So long as we have ideals, the desires behind these ideals will give them weight. The wish for unquestionable principles for action is natural, but in other cases we are willing to act on principles others question. What is necessary is that we should not question our own principles; if others question them we are willing to fight for what we believe in. Many wars illustrate the fact that neither side is less strenuous because its view of the case is repudiated by the other side. Why not the same condition in moral matters?

The adjudication of conflicts of fundamental moral ideals is not secured by appeal to principles universally recognized: the very fact of conflict is witness to the lack of such principles. The adjudication of such differences is the result of the victory of one ideal over another. Such victory is secured in various ways. Not the least important or least common way is that of resort to physical force. The critical battles of history have settled by might of arms the ideals to be accepted for many successive generations. The American Civil War decided that in this country slavery be considered wrong; it *established* the ideal of a certain sort of freedom. The wars of the Crescent decided that Mohammedan moral ideals should prevail in what by the issue of these wars became Islam. If we, in looking back upon the course of history, decline to acknowledge that in any particular case might thus made right, that is because *another might* has meanwhile arisen and brought our sentiments into accord with its sway; and from the point of view of the new ideals that have thus triumphed we condemn what was once victorious. The decision *now* is *ours* and of course we make it with *our* standards to control it. The recognition that might thus makes right, instead of debilitating our morality, should make us fight the harder for the victory of our ideals.

But the might of arms is not the only might that is operative.

Every moral judgment is a weapon in moral warfare. A moral judgment is not a cold intellectual process. It has an animus. We blame, and thereby insidiously seek to arouse displeasure in what we blame. We seek by expressing disgust to produce similar disgust in others. The prophet of every virile ideal has wielded the lashing tongue. Punishment is another weapon in moral warfare. Force is used to suppress the advocates of alien ideals, and thereby to suppress these ideals themselves. Praise is another means employed, analogous to military rewards.

In all confrontation the right is on both sides till one side is annihilated. How then shall we judge the parties to such a conflict? There are two ways, each right in its place. In one way we recognize the right of each side to defend its own. When we are impartial arbiters, we do *not* arbitrate, but recognize a military *status quo*, maintaining a strict neutrality. In the other way we actually seek to arbitrate, but in doing this we show our partiality. Having adopted certain principles, having elected certain ideals, we pass judgment by these ideals. This very use of our own standards shows that we are not neutral. If we call ourselves impartial, this impartiality is our own partiality eulogized.

Such a view of moral conflict does not leave us hopeless as to its solution. The solution will come by fighting the matter out; and history shows that what in one age seems a hopeless *impasse* is cleared away in time by the action of such forces as have already been mentioned. Such a view also enables us to answer the question whether there has been moral progress in the course of the ages. The judgment as to progress always involves a standard by which movement is evaluated. Here again when *we* are the assessors, we make the assessment with *our own* standards to determine *our* judgment, and incidentally to determine by moral browbeating or moral suasion the judgment of others. When we know what we want, we can, assuming knowledge of relation of means to end, decide whether a historical movement has been toward this end, *i. e.*, progress, or away from this end, *i. e.*, retrogression. Relativity in morality leaves us with real ups and downs in moral history, just as the various antipodal gravitational ups and downs still leave us each with an actual up and down for the place which he for the time occupies. Just as the pull of gravitation tells the traveler which way is up and which way down for the place he momentarily occupies, in like manner it is the pull of our present system of desires that determines which way is up and which way down in moral movements; but our decision here is not a decision for the universe at large; it is a decision, *nobis judicibus*.

The Social Origin of Absolute Idealism.—GEO. H. SABINE.

Like all English philosophy, idealism was largely an interpretation of English social and political experience. The political philosophy of the first half of the nineteenth century, whether in the theory of natural rights or in the utilitarian *laissez faire* politics and economics, rested upon the belief that liberty arises from the limitation of social control; it assumed a sphere of individual interests which ought not to be invaded. A partial realization of this ideal in practice produced a reaction against it which began to be general about 1850 and affected liberal legislation in the '70's and early '80's. The constructive idea in this reaction was a more positive notion of freedom issuing in the belief that society should use its organized power to guarantee, so far as possible, a certain degree of positive achievement; an opportunity, at least, for all citizens to enjoy the benefits of a civilized life. The self-realization ethics of the English idealists was an effort to theorize this belief. It rejects the older antithesis of social control and freedom, of public and private interest, of egoism and altruism. In its criticism of earlier philosophy it centered its attack upon subjectivism and individualism, considering the essential function of consciousness to be self-transcendence. Hence it regards social relations as a product of consciousness and, therefore, different in kind from spatial or causal relations between non-conscious beings. Reciprocally it regarded self-realization for the individual as impossible except in the pursuit of socially beneficial ends; Individuality and social organization progress *pari passu*. For the absolute idealist, however, the concept of a perfectly realized individual, or an "eternal consciousness," remains necessarily vague and largely without content. The social organization, therefore, since it supplies the content of the individual's ideal, tends to become absolute. The individual becomes an organ of society and self-realization is merely the finding of one's station in society. This is best illustrated in Bradley's statement of self-realization in his "*Ethical Studies*." Absolute idealism thus becomes destructive of the ideal of positive freedom which it set out to establish. A metaphysical pluralism is the more natural accompaniment of such an ethical ideal.

Voluntarism and objectivity.—H. W. WRIGHT.

An attempt to outline a system of voluntarism with particular attention to the problem of objectivity.

Will is the root activity of conscious experience. It seeks to effect such coordinations of movement as satisfy the greatest variety of interests. The power of movement (in tri-dimensional space) and of choice between given interests are thus equally original with volition itself. Objective reality is that which conditions the operation of

will, permitting, and thus sanctioning, certain actions, checking and frustrating others. An idea is realized when it is re-experienced as the result of effortful action and thus brought into dynamic relation with actual experience. Thought is a specialized form of volition whose aim is to represent all objects that can be realized. In pursuit of this aim it relates ideas dynamically, in terms of the activities required to produce them. These activities are two—movement and choice. Hence two ideal systems are developed, the mechanical and the teleological, the world of motion and the world of value. This dualism can not be overcome by intellect since it goes back to volition of the original principle, and is a presupposition of thought itself. It can be overcome only by action, by making the mechanical order contribute to the fulfilment of personal interests, such unity being directly experienced in the emotion of satisfaction which crowns finally successful labor.

The Logical Analysis of Intrinsic Value.—A. P. BROGAN.

The first requirement in any scientific discussion of value problems is the rigorous definition of all other value terms by one or more value terms taken as fundamental in the value system. As extrinsic value terms (denoting worth as means or parts) depend upon intrinsic value terms (denoting worth as ends or wholes, such as "good," "bad," "better," "beautiful," possibly "ought" and "right") intrinsic value terms alone will be discussed. Neither "good" nor "ought" can be taken as the fundamental value term. Apparently the relation "better" (or its converse "worse") is the only term which can be taken as fundamental within the system.

Analysis shows that the determining logical characteristics of this relation (and the postulates for a value system) are as follows:

- 1.1. Better is contained in diversity.
- 1.2. Better is transitive.
- 1.3. The relative product of better and of not-worse is contained in better.
- 1.4. Whatever is in the field of better is identical with the fact that there is an entity (or entities) having some quality (or relation), or is identical with the fact that there is no such entity (or entities).
- 1.5. Not-better is identical with not-better limited to the field of better.
- 1.6. All facts about non-existence are equal in value. (Equal in value means neither better nor worse.)

These postulates suffice for all deductions about intrinsic value, except that additional postulates are required for the problematic operation of "adding" intrinsic value objects (to avoid G. E. Moore's

“principle of organic unities”). With Russell’s theory of logical types, postulates 1.4 and 1.5 could be replaced by a single postulate.

All so-called axiomatic or *a priori* knowledge about value facts is found to be the result of purely logical deduction from these postulates and the definitions of other value terms.

Examination of the relation “better,” taken as fundamental and undefined within the value system, shows that “better” can not be so adequately identified with any other (non-value) relation that this other relation can be used to define “better.” For present human knowledge “better” must be taken as a simple and unanalyzed relation. It must be studied as being what it is and not as being something else.

All arguments that such a value relation is “subjective” or “unreal” are based upon trivial fallacies. While there is no more certain proposition known to be true from which it can be deduced that this relation has a “real” reference to facts, there is no reason for doubting that “better” has all the “reality” possessed by the relations studied by other sciences.

On this logical basis, with the help of inductive methodology, value discussions can become value sciences.

An Interpretation of Naturalism and the Impersonal.—J. H. FARLEY.

If one inductively analyzes the writings of philosophical naturalists, one is struck by the common trend of interpreting a large number of fundamental concepts. This marked trend is what characterizes naturalism, and not merely the tendency to emphasize sense experience or sense verification. The marginal as well as the focal elements in a philosophical movement should be considered in determining the real nature of a thought movement. Its peculiar methods of viewing numerous concepts is identical with much of impersonalism or with absolute idealism. Naturalism is not an organized system of thought, but a pronounced group of attitudes toward certain fundamental concepts, as of unity, identity, change, motion, dependence, and independence, absolute, relative, being, non-being, consciousness, control, value, reality, etc. Naturalism naïvely adopts this attitude. Though not a system, these attitudes of naturalism may become in the hands of a dialectician the basis for a group of peculiar problems out of which a subtle dialectic may result. Very much of Bradley’s “Appearance and Reality” is, in reality, such a dialectic, though Bradley has no purpose of showing the dialectic of naturalistic attitudes.

Naturalism is not synonymous with materialism, mechanism, nor externalism. It is not identical with extramentalism or positivism. It is not merely a doctrine of the self-sufficiency of nature in oppo-

sition to supernaturalism. It does not aim to show that laws give an exhaustive account of individuals. It is more than the methods of physical science as applied to the world, etc.

The concept of the real is so important in naturalism that we may say philosophical naturalism as distinct from scientific naturalism is a doctrine of the *absolutely fulfilled* treated as a self-sufficient affair without essential reference or relation to any process of fulfilling, without relation to any means, meaning, or reference, and without relation to the expression of any unfulfilled nature. It completely ignores, either tacitly or explicitly, to describe and explain the world in terms of absolute fulfilment.

Conscience and the Highest Good.—RUPERT C. LODGE.

It is important to make a distinction between process and content, and abstracting from the process side of conscience, to analyze its content. Conscience represents the application of a moral imperative to a particular case. Implicit in primitive conscience, explicit in reflective conscience, we find reference to a "moral law," claiming universal validity. The highest good is found to be, not any particular "good," but the highest *degree* of goodness, *i. e.*, of conformity to the moral law. The highest good in this sense, *i. e.*, as a higher degree of approximation to such conformity, always at least implicit in conscience, must be made explicit for highest development of moral personality.

Both associations dined together on Monday evening at the Quadrangle Club, where the members listened to the address of their president on "Ethics of States." This was a stirring paper, the publication of which should not be long delayed. It discussed with energetic criticism the conception of the state as power, a ruthless conception which idealizes the doctrine of survival, the great materialism.

The members of the Philosophical Associations had been invited to express opinions on the organization of the Society of American Professors. Great interest was manifested in the undertaking, together with a cordial approval of its purpose.

On Tuesday afternoon the members of both associations were invited to meet in conjunction with the members of the American Political Science Association to listen to a paper by Professor W. F. Dodd on "Constitutional and Political Guarantees" and a paper by Professor George H. Mead on "Natural Rights and the Theory of Political Institutions." An invitation was also extended to the members of the two associations to attend the delivery of the presidential address before the Political Science Association, by Professor John Bassett Moore.

Of the American Philosophical Association, Professor A. C. Armstrong was elected president; Professor W. E. Hoeking, vice-president; and Professor E. G. Spaulding, secretary and treasurer. The new members of the executive committee are Professors Morris R. Cohen and Wilbur M. Urban.

Of the Western Philosophical Association, Professor A. H. Lloyd was elected president; Professor C. E. Cory, vice-president; and Professor H. C. Longwell, secretary. Professors F. C. Sharp, H. B. Alexander, E. H. Hollands, and E. H. Lindley were elected new members of the executive committee.

It had long been felt that the title, American Philosophical Association, was too comprehensive to be properly the name of any single society. Ten years ago, after some correspondence between the American and the Western Philosophical Associations, the American Association voted to defer the matter of a possible change of name until there should be a joint meeting of the two associations. The meeting just held at Chicago being the first joint meeting, the question was automatically revived. The association, accordingly, instructed the Executive Committee, as supplemented by three members to be appointed by the Chair, to consider the advisability of a change of name together with some sort of amalgamation among the three philosophical associations of the country.

The place and date of the next meeting of the Association were left to the Executive Committee with power.

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REVIEWS AND ABSTRACTS OF LITERATURE

The Distinction Between Mind and Its Objects. BERNARD BOSANQUET.
Manchester, England: University Press. 1913. Pp. 73.

Mr. Bosanquet in an interesting lecture expounds the new realism as promulgated from the University of Manchester, and especially from Dr. Alexander. To Mr. Bosanquet the doctrine of "physical realism" seems to stand midway between materialism and idealism. If materialistic, it is not so in the old sense, for it aims at a complete recognition of the world as we know and love it, and has no faith in a prerogative reality of spatial properties. It accepts external things in all their concrete richness of existence as reality independent of mind: color and music are just as real as atoms and gravitation. There is no higher and lower plane of reality: universals, too, are real, and are not a product of mind. Mr. Bosanquet presents this view with sympathy and enthusiasm, and welcomes a philosophy that gives us so full and rich a world. Yet he can not accept the doctrine in its entirety, and when he passes from presentation of his subject to criticism of it, it is like passing from sunlight to shadow, for meanings become blurred and misty for the ordinary unsophisticated

mind. The criticism contains nothing that has not been urged before by critics of the Hegelian type. Just how does it throw light on the question of universals to be told that "a universal is the effort of a content to complete itself as a system"? And is the question of the mental or non-mental character of objects of sense made more clear by Mr. Bosanquet's discussion of "blue"? He says: "What I see when I look at a blue thing has unity and life. Its parts support and determine one another by explicit compresence, it pulsates with feeling, a common tone which involves the presence of a whole all at once, reinforcing and modifying every part by the simultaneous effects of all. . . . What makes the blue reinforce and modify the blue? . . . What sort of medium does such a unity involve? Surely that of consciousness and no other. Blue, then, while it retains the character of blue, must have in it the life of mind." What does this mean? I am sure the ordinary person, even the ordinary philosopher, would be depressed and bewildered by this account of "blue."

The main point of Mr. Bosanquet's criticism is that the realist has reduced the place of mind in the world to its narrowest conceivable limits, and has cut off from it the great body of physical reality. To Mr. Bosanquet this cut-off body of reality shows within itself a "vitality, primarily logical, but for this reason ultimately and in essence involving continuity with a psychical system." As long as this severance prevails, a just estimate of "reality-values" is impossible.

For (1) it is a mistake to take mind as one object and reality as another. "Mind is always a whole, . . . an object is a fragment." This fact makes it difficult to assess the reality of objects apart from mind. "For what is real must surely be a whole, whatever else may be its character."

(2) Mr. Bosanquet can not accept the theory that sense presentations are non-mental and physical. For any analysis of a sense content, "blue," for instance, seems to show (as quoted above) that blue possesses a kind of unity that shows it has in it the life of mind. It is "logical." This is true also when we analyze what is meant by a universal. A universal is of "the nature of a conation," an endeavor towards a whole which indicates participation in the life of mind. Also the tertiary qualities can not escape being regarded as distinctively psychical.

(3) But above all, the realist fails to be satisfactory because he has failed to inquire into the conditions of self-existence. If you want to find out what is real, you must ask what it is to be self-existent. Mr. Bosanquet says "The nature of being a world or whole is what I take to be the condition of self-existence." "A mind is a whole, that is, in its nature and intent; an object is a fragment." "There can be no concrete whole, but a whole centering in mind, and no self-existent whole but a concrete whole." Does the reality of the physical realist measure up to this? No, not if its reality is abstracted from mind, and so rendered dead and meaningless. "Objects of finite mind and finite mind itself . . . are details of reality essentially continuous with each other and reciprocally indispensable." The realist makes the mistake of confusing "independent of" with "in abstraction from." Mr. Bosanquet's conclusion is that "the

continuity of the real world with mind is the inevitable goal and climax of twentieth-century physical realism as opposed to eclectic materialism." "If the object is to be real in its fullness, as it is the merit of that doctrine to affirm, it must be maintained in connection with its complete conditions. To try and hypostatize it apart from organisms and their minds is an evasion of the task. . . . Abstraction is an abandonment of the quest."

FLORENCE C. LAMONT.

ENGLEWOOD, N. J.

The Elements of Psychology. DAVID R. MAJOR. Columbus, Ohio: R. G. Adams and Company. 1914. Pp. xv + 413.

The revised edition of Professor Major's work is almost identical with the original edition. Sundry corrections, notably of anatomical errors, and some slight additions are made. Minor rearrangements of material have also been undertaken—such as bringing what was formerly printed under "The Nature of Attention," into a new section entitled "Popular View of Attention."

The reviewer in commenting upon the unrevised edition expressed the wish that some portions of the text had been less of the nature of pabulum, since in his judgment one way of raising standards of scholarship is to presuppose a modicum of intelligence in one's students. It may be that this opinion was unjustified, but it still remains difficult for him to conceive how students of college age should require the enlightenment of the following paragraph which has been added to the section "Thought as Judgment." In explanation of the phrase "relation to other things" (p. 252) we have the following:

"Suppose one is thinking of a boulder's 'relations' to other things. To assert that the boulder lies to the right or left, east or west, above or below, inside or outside, of some other specified thing, that it is east of a given oak tree and inside an iron fence, is to utter judgments regarding its *spatial* relations. Temporally regarded, one may continue, the boulder in its present form antedates certain geologic events and is subsequent to certain others. Again, one is thinking of *causal* relations when one affirms that the boulder's present form and position are due to glacial action. One may designate its further relations by noting that it is composed of certain substances and belongs to such and such a class of rocks. These may serve as examples of statements regarding the physical relations in which objects stand to one another. We also speak of 'human relations,' the relations in which human beings stand to one another, *e. g.*, parent and child, principal and agent, author and reader, judge and jury, general and army, class and pupil, society and individual, and so on."

JOHN WARBEKE.

MT. HOLYOKE COLLEGE.

JOURNALS AND NEW BOOKS.

AMERICAN JOURNAL OF PSYCHOLOGY. October, 1914. *The Distribution of Consciousness and Its Criteria* (pp. 471-499): ROBERT MACDOUGALL.—The psychologist experiences consciousness, but must inquire for its boundaries to explain it. The nervous system correlates the body very closely with consciousness, this connection giving rise to many problems. Consciousness as a form of energy, like other forms, is conditioned by specific forms of physical activity. Consciousness manifests itself in the various different reactions that may follow stimuli and the possibility of progressive changes in response to the stimuli. *Adaptation and the Chemical Theory of Sensory Response* (pp. 500-527): LEONARD T. TROLAND.—Corrections and elaborations of Hering's theory of the metabolism of response are presented. Touch, temperature, motor activity, taste, and vision are considered metabolic. Olfaction presents a peculiar chemical mechanism. Audition and the labyrinthine senses present purely mechanical forms. Appendix. *On the Psychology of Poetic Construction* (pp. 528-537): RADOSLAV A. TSANOFF.—The first draft of a poem furnished a laboratory record of the poet's imaginative consciousness. *The Effect of the Attitude of the Subject upon the Measure of Sensitivity* (pp. 538-543): SAMUEL W. FERNBERGER.—Mental attitude can cause large variations of sensitivity as shown by the judgment of lifted weights. *The Association Method in its Relation to the Complex and Complex Indicators* (pp. 544-594): SAMUEL C. KOHS.—The psychology of association is very important in education. The fundamental factors of character, temperament, condition of mentality, and psychological eugenics are to be found in the nature and development of associations. Bibliography. Appendix,—complex indicators and association series. *Book Notes* (pp. 595-598): Silvios Canestrini, *Ueber das Sinnesleben des Neugeborenen*. William Stern, *Psychologie der frühen Kindheit*. Herbert Silberer, *Probleme der Mystik und ihrer Symbolik*. Graham Wallas, *The Great Society*. Dr. Ludwig Zocpf, *Die Mystikerin Margaretha Ebner*. David R. Major, *The Elements of Psychology*. Edwin M. Johnson, *The Vital Law*. Hugo Münsterberg, *Psychology*. Carl E. Seashore, *The Psychological Monographs*. Dr. Arnold Ruge, *Die Philosophie der Gegenwart*. Dr. Wilhelm Paszkowski, *Berlin in Wissenschaft und Kunst*. Franz Selety *Die Wirklichen Tatsachen der reinen Erfahrung, eine Kritik der Zeit*. Dr. Karl Marbe, *Fortschritte der Psychologie und ihrer Anwendungen*. H. L. Smith and Charles H. Judd, *The Thirteenth Yearbook of the National Society for the Study of Education*. Von Hellmuth Falkenfeld, *Wort und Seele; eine Untersuchung über die Gesetze in der Dichtung. A Bibliography of the Scientific Writings of Wilhelm Wund* (pp. 599). E. B. TITCHENER AND W. S. FOSTER. *Index*.

Blackwell, Antoinette Brown. *The Making of the Universe*. Boston: The Gorham Press. 1914. Pp. 198. \$1.00.

Brunswig, A. *Das Grundproblem Kants*. Leipzig: Verlag von B. G. Teubner. 1914. Pp. vi + 170. 3.60 M.

- Coulter, John Merle. *The Evolution of Sex in Plants*. Chicago: University of Chicago Press. 1914. Pp. 140. \$1.00.
- DeMichelis, E. *Il Problema delle Scienze Storiche*. Torino: Fratelli Bocca. 1915. Pp. x + 390. 5 L.
- Durell, Fletcher. *Fundamental Sources of Efficiency*. Philadelphia: J. B. Lippincott Company. 1914. Pp. 368. \$2.50.
- Forel, August. *Über Unser Menschliches Erkenntnisvermögen*. Leipzig: Verlag von J. A. Barth. 1915. Pp. 19. 80 M.
- Holt, Henry. *On the Cosmic Relations*. Boston and New York: Houghton Mifflin Company. 1914. 2 vols. Pp. xi + 989. \$5.00.
- Lawson, Charles. *The Buried Ideal*. Boston: Sherman, French, and Company. 1914. Pp. 183. \$1.25.
- Psychological Researches of James McKeen Cattell. A review by some of His Pupils. *Archives of Psychology*, No. 30. New York: The Science Press. 1914. Pp. v + 101.

NOTES AND NEWS

PROFESSOR JOHN B. WATSON was elected president of the American Psychological Association for the ensuing year. Professors R. P. Angier and W. D. Scott were elected to the Council for a period of three years, succeeding Professors Max Meyer and Margaret F. Washburn. The Council voted to hold the next meeting of the association at the University of Chicago on December 28 to 30, 1915. A special meeting for the reading of papers was also authorized to be held at San Francisco during the Panama-Pacific Exposition. This meeting will be held in affiliation with the American Association for the Advancement of Science within the week August 2 to 7, 1915. The organization and arrangements were placed in the hands of a committee consisting of Professors G. M. Stratton (Chairman), Lillian J. Martin, and Warner Brown.

At the business meeting of the American Philosophical Association at Chicago on December 30, the following officers were elected: President, Professor A. C. Armstrong; Vice-president, Professor W. E. Hocking; Secretary and Treasurer, Professor E. G. Spaulding. Professors Morris R. Cohen and Wilbur M. Urban were elected to the executive committee.

At the meeting of the Western Philosophical Association, Professor A. H. Lloyd was elected president; Professor C. E. Cory, vice-president; Professor H. C. Longwell, secretary and treasurer. The new members elected to the executive committee are Professors F. C. Sharp, H. B. Alexander, E. H. Hollands, and E. H. Lindley.

PROFESSOR MAX MEYER, of the University of Missouri, calls attention to the fact that the Hugo Claparède mentioned, in the issue of this JOURNAL for January 7, as being dismissed from the University of Geneva, is Hugo Claparède, the lawyer, and not Ed. Claparède, the psychologist.

On February 5, 6, and 7, Dr. John Dewey, professor of philosophy at Columbia University, gave three lectures at the University of North Carolina, under the McNair Foundation, on "Philosophy and Politics with Reference to Modern German Thought."

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

PHILOSOPHIC SANCTION OF AMBITION

EVERYBODY has heard of the political philosophy, associated variously with the names of Nietzsche, Treitschke, and Bernhardt, by which the present prodigious efforts of the German nation are clearly explained and justified. A fact not so often noticed, though even more interesting, is that this political philosophy has far deeper roots in speculation than those somewhat unsavory names might suggest. German policy is plainly consonant with a naturalistic view of the moral autonomy and deadly competition of nations and ideals: it also expresses, in its internal motives and temper, the transcendental theory of an Absolute Will. Doubtless an unfriendly critic might urge that both these speculative sources are tainted or even poisonous; but it is certain that from both flow impetuous currents of thought and feeling, which mingle eloquently together. It is idle to deny that the spectacle of nature and history, as groping observation reveals it, stimulates the self-esteem of those who feel they are strong and tempts them to use their strength, when the time comes, without mercy. We need not appeal to Darwin in the matter, nor strain the frigid *constatation* of natural selection into a spur to violence, especially as violence is not always a sign of strength nor a means to survival. A glance at the human world, without any pretensions to formal science, is eloquent enough: and the Germans have in their own history an especially provocative record of expansion and masterful migration, in which, to be sure, the spirit of the conqueror was often seduced by the new scene, and was poured out to irrigate a foreign field of culture, if not to waste itself in sands. This old frustration, often repeated in minor ways since, still weighs on the nucleus of the nation, which feels its strength to be as exuberant as ever, and its achievement and position nothing to what they should be. Why should the Germans refrain from what every prince or people has done when they felt themselves stronger and better than their neighbors? Why should they not plunge in, like them, with a courage that is half greed and half heroism, to reburnish the dull face of the world and make it shine with their own glory?

Is not wild spontaneous life everywhere non-moral and aggressive towards what remains outside, while creating an internal morality, strict in proportion as that life is keen and well-organized?

So much for the "will to power"; but there would be some want of insight or of candor in not admitting that this present inspiration of the Germans is faithful to that of their great systems of philosophy; faithful also (if we care to plumb such opaque depths) to the instinct underlying the Reformation, to the original element in German poetry and music, and even to the cast of Teutonic mythology. This consecutiveness in the national genius, in spite of much waywardness and many a check, may be taken for a proof that the German leaders of to-day are no novel monsters, but deeply authorized spokesmen of their nation and of a certain perennial, perhaps fundamental, factor in human politics. The same consecutiveness, if we prefer, may be taken for a proof that the German mind has never yet been tamed or domesticated in the world, but is persistently barbarous, and that its greatest prophets, in analyzing reason and conscience, have always merely disintegrated them, and in principle relapsed into animal faith. Both conclusions, I think, are largely justified, and they are far from incompatible. What above the temporal issues of the present war, incalculable as these are, makes the magic and eternal interest of the moment is precisely this glowing challenge flung against fate by a nation conscious of its vitality, conscious of its ideals, admirably devoted to the task of making them effective, and, behind all that, half conscious of the doom that sooner or later must overtake its ambition; not because its present enemies need prevail—that is a question of circumstances—but because the plunge of ambition, like that of life itself, as the animal soul takes it, is always a plunge in the dark, into the infinite, into the all-engulfing yet fertile bosom of chaos.

Of this doom, I say advisedly, the Germans are only half-conscious. Few of us have the courage to face in thought the tragic situation which every living creature faces daily in action. This tragic situation, in that the force of the infinite infinitely exceeds that of any living will, is presupposed at bottom in the romantic and transcendental philosophy of the Germans and lends it, to my mind, its haunting depth and applicability. Until Schopenhauer and Nietzsche let out this secret, it was religiously kept, wrapped up in the ambiguity inseparable from the transcendental method; but the sad secret was always there. A logic of will and imagination must needs be confined to the subjective; it can not deal with the conditions of its own operation. Hence the first act of the will, in Fichte, had to be "shot out of a pistol," and the career of the world, in Hegel, had to end abruptly in himself. Though these

philosophers took good care not to say so, all they described was evidently but a closed, private, fleeting, ungrounded experience, a dream absolutely self-centered and absolutely precarious, a very idealism! They would have urged, had they been pressed, that nothing else could ever be described or discovered; that all life was essentially an agitated ignorance. Nevertheless it was one's duty to live on, and "to call spirits from the vasty deep" to do one's bidding. A dizzy enterprise, surely, but a most romantic one. In vain the soft-minded majority, even of professed philosophers, clung to sluggish and temporizing habits of thought, and averted their eyes from the somber background of their heroic national philosophy, trying to transplant it into the snug moralistic cosmos of Greek and Christian tradition. In genuinely German thought which is heathen the opposite is what happens: each successive conception of the world, each successive religion, expresses but one phase of absolute action; it is the scenery painted by the mind for one act in its interminable drama; and since this creative genius is absolute and poetizes in a void, there is no knowing when, how long, or how perfectly it will come to expression. It lives without conditions and consequently without guarantees.

An eternal idea, however, was understood to be implicit in this universal romantic effort; and this idea was deputed, by a pious confusion, to guarantee its own fortunate development, broken and ignominious as this development actually is; as if the multiplication table had been deputed to determine what school-boy should recite it, and what mistakes he should make. Similarly the moderates among German Nationalists often recoil from the heroic rôle of absolute adventurers which the deeper instinct of the race is bold enough to assume and to live out with exultation, even to a tragic end. Instead they persuade themselves that God, who once inscrutably chose the Jews to be his people, may now no less inscrutably have chosen the Germans, and promised them the possession of the earth if they prove faithful to his law, *which is imprinted in their hearts*. They do not see that this last fact is sufficient, and the rest mythology. Probably, too, they deprecate war and resent the imputation of ambition. Their patriotism dwindles into pious affection for the homelier aspects of their country and admiration for the portentous equipment, learned and military, with which it has armed itself; but they forget the soul and purpose of the whole, and the boundless half-conscious ambition which it has long been toiling to satisfy. In defending they stultify themselves; as if an absolute self-justified impetuosity were not the thrilling side of the German spirit, at once naïve and fierce, which alone raises it nowadays above the pervasive indecision. A majority of trimmers, however, is always to be expected: and in

this case it need not keep us from regarding the brave and clear-sighted few as the true interpreters of their country, especially as it is they, at this juncture, who are visibly guiding its destinies.

GEORGE SANTAYANA.

THE MENTAL ANTECEDENTS OF SPEECH

IT is usually said, in discussing speech as a motor process, that an idea of some sort always starts the mechanism of speech. It also appears that one must distinguish in some degree at least between ideas and words as incentives to vocal utterance. When we make this distinction two problems must be considered: (1) How does thought get translated into words as one prepares to speak? (2) What bearing does this have upon actual vocal expression? The first of these problems is by far the more important, since, so far as consciousness is concerned, thinking the word is practically the only condition necessary for its utterance. In attempting a statement of the problem it is necessary to distinguish different cases. With reference to the relation between thought and language, one must have noticed that there are many instances in his own experience in which the problem could not arise at all. Very frequently one talks without noticeable antecedent imagery. In other cases one has a vague notion of what is to be said in addition to talking, but no definite words or separate images that correspond to the words. In other cases words are thought first and then judgment is passed on them before they are uttered, and there is also the general notion of what is to be said in advance of the words, and before the separate words develop. In still other cases the processes reach a maximum of fullness. There is first the anticipatory intention, then a further elaboration as thought, then translation into words, and finally the vocal utterance. This most complete form is the least frequently noticed, but since it is possible, and actually does occur, it may perhaps be made the type for analysis and explanation.

A theory that can be made a starting-point for discussion is offered by Wundt's assertion that development of the sentence in preparation for speech is nearly always analytic rather than synthetic. He insists that there is ordinarily in mind a complete idea of what is to be said before the sentence is formulated, and, furthermore, that the way from the anticipatory total idea to the sentence is ordinarily one of analysis. The idea is present in all its entirety before the sentence or its anticipatory thought elements present themselves. These part ideas or words are selected or analyzed from the total idea, and at the time they are thus selected they are seen to have certain relations to each other; by the very process of analysis or by

virtue of their earlier connections they have or are given certain relations to one another that determine their connections in the sentence as a whole. On this view, discrete thought would be at the most a process of elaborating what is earlier contained in a total idea. The advantage of this way of putting the problem, from Wundt's point of view, is that it avoids the necessity of raising the question of how the elements of the sentence are put together. They are found together; the question is only one of how they are made distinct in the total complex or matrix in which they are found.

Unfortunately, Wundt does not make very clear the nature of the preliminary idea. It is apparently for him something almost as definite as a real perception. If one examines one's own consciousness there are occasions that seem to harmonize with this picture, but these come, for the most part, when one is describing some event or object from memory, rather than when thought is more constructive. If one, for example, is endeavoring to describe a landscape, one sees it in the "mind's eye," if of the visual type, and then selects one feature after another for description. The objects are all there before analysis and description. This consists in selecting one feature after another and supplying the words that best describe them. But this is the only case in which introspection seems to justify the statement that there is a definite anticipatory idea that is analyzed and translated into words. Even here one might question whether the selection did not really add something to the picture that was at first in mind. Whether the process was not in part one of recalling elements of the original picture as well as merely picking out one part after the other. Certain it is that the picture in mind before analysis into parts and the picture as analyzed are not identical; the process of analysis has enriched the content. It is difficult to be sure that recall through association has not played quite as important a part as has mere analysis. But even this slight justification for the preliminary idea as holding the material that is to be obtained and described in language is absent in all other forms of description. When one is describing an object through motor or auditory recall, it is not all in mind at once, but one bit comes in at a time. There is no question of analysis in that case.

But while one can not take Wundt's description as seriously as he means it, still he emphasizes certain important features of the preliminaries of speech that must be taken account of in any theory or description. First, while we can not agree that the idea to be expressed is always definitely present in consciousness in advance of analysis and expression, yet it is certainly true that there is some foreshadowing of what is to be said before it is definitely prepared for expression. In the second place it must be admitted that the

same elements that give an inkling of what is coming also furnish the conditions that serve to unite the different elements of thought and of the sentence, or, more accurately, make the elements really belong together from the beginning rather than need uniting as is sometimes assumed by writers on language. On the other hand, it is logically impossible that the idea can both be present in advance of analysis and at the same time be developed by thinking. As a matter of fact (give this description the most liberal latitude possible in interpretation), it is very seldom that the actual process of preparing thought for utterance takes the form that Wundt indicates of a total idea, an analysis of that total idea, and then a translation of the parts into words.

One must in any discussion of the speech process go even farther than Wundt in insisting that any particular speech element can be understood only in its setting, in the general situation of the man at the moment, and in the general context of the individual thinker before any sentence is spoken. One sentence grows out of another, and still farther back one idea is the outgrowth of earlier ideas, so that one can not understand any single step or stage in a discourse unless one considers what has gone before it in the discourse, the general social situation in which the speaker finds himself, as well as the more remote bits of knowledge, and the earlier connections with the members of the group to whom he is speaking. If one were to sketch a list of the factors that are involved in thinking, one would have to begin with a statement of the problem, and this could only be stated if one were to go back to a fairly general purpose that had been developed gradually in the experience of the thinker. Now I am writing this sentence as a result of my intention to discuss the mental antecedents of sentences in general. That intention has developed gradually out of other problems, as the result of reading and observation that has raised the question whether one thinks before one speaks and how far thinking precedes this speaking and what form it takes. If one drops into this attitude from some purely non-professional train of thought, there is a fairly complete break in the train of ideas; the new series began where one was working last week or thinking yesterday on the same problem, but all that is remembered of what has been said before has its influence on the train of thought at the present moment. The first controlling influence on speech, then, is the group of antecedent experiences that in a sense constitutes this attitude and in a sense controls the attitude, which is renewed and aroused as I sit down to the typewriter with the intention of doing a little work on this particular topic.

But it is not implied that this intention necessarily carries with it the full details of all that is to be said. Much of the intention is

no more than a general idea of the problem to be solved. There are vague references to Wundt and the feeling that his theory is incomplete and one-sided. Notions of the influence of meaning and the possibility that the Würzburg schools and Woodworth's naked thought notion may play a part in the matter, that in any case they are all wrestling with the same problem and are probably all aware of the same group of facts and may really mean the same thing as a solution except that they are taking partial views of the total processes, and each is prevented from seeing the truth in the other's view by the different methods of approach. These different ideas are not clearly represented at one time; in fact, all that may be clear is that one must analyze this preliminary idea; the other elements flit in and out as the process of analysis proceeds and before anything is formulated in words, and before satisfaction with the result is sufficient to make it seem possible to formulate the attempt in words. There is nearly always some preliminary idea; one nearly always has the belief that it is sufficiently clear to stand formulation before the words begin to make their appearance, but it is not analyzed, the different parts are not represented as distinct, there is no foreshadowing of the form of the sentence before writing takes place, and still less before one speaks even in the somewhat formal process of lecturing without notes. The total idea that Wundt has in mind is apparently nothing more than this intention to say something when one begins to express any bit of abstract thinking and need be no more than that in connection with more concrete mental operations.

The form that this intention to say something takes varies from individual to individual and from moment to moment. In the experiments of Bühler and others it seems to be nothing more than the satisfaction that the subject is ready to speak, and this may be no more than the removing of inhibitions. In any case it comes in no particular imagery, certainly no imagery that a critical observer would say was adequate to what was to be said. In fact we may say in the light of present controversy that the total idea is nothing more than something that means what is to be said, rather than anything that resembles or *is* what is to be said. It can only be asserted in the most metaphorical sense that this is analyzed in the process of speaking. There is really nothing there to analyze, in the sense that one can analyze a painting or a landscape that is present in the world outside. In most cases one would not know that there had been anything in mind unless the formulation in words had taken place. Certainly one would not have known what was in mind were it not for the expression, and could one give to any one else an accurate description of the mental content that preceded the sentence, he

would not recognize it as the matrix from which the sentence had been chipped.

On the negative side, it seems that Wundt's description of the processes that precede speech is not adequate. How then does this intention become fulfilled; how do the vague foreshadowings of what is to be said actually take form? As has been implied above, this varies greatly with the material to be expressed. In the case of more abstract thinking which we have started to analyze it appears that the formulation of the idea first takes place in words. There is the preliminary intention, which may be sufficient for several sentences; then the words come as a result of association, first with the idea, then as a consequence of the connection between the words themselves under the influence of the more general purpose or intention.

It is more of a problem what determines the associations that start the sentence. That may come from the preceding sentence; it may come from the preceding train of ideas; it may be due to the fact that this is the first idea of a series put into words, that it seems to require particularly accurate statement or analysis, or because of the social environment at the moment; some one may have appeared, or it may chance that the idea that has presented itself promises to be particularly interesting to the companion with whom one has been sitting or walking in silence, or more frequently, where one has been with some one else, it may be in response to a question. The response to a social need, immediate or possible, present or in prospect, constitutes the more usual incentive. But very much of our more serious thinking is given the verbal form for the sake apparently of definiteness and of being tested as to its truth in that form. Part of the test may be that it is merely more definitely formulated and thus can be evaluated in its details. In rarer cases it may be put in the conventional forms of logic, more frequently in the unconventional, but more habitual forms that have been found to be adequate in practise. Often, too, the formulation is given that it may be ready for an imaginary audience, and the result accepted or rejected as past experience has shown the ordinary auditor or customary audience would accept or reject an argument of that form. In consequence of these different factors much if not most of adult thought, particularly serious abstract thought, is in words, even when the individual is alone and has no intention of preparing a future discourse.

Granted the general intention to express something, the preliminary intention to express some particular thing, which is indicated by a most general mental content that means that thing in the vaguest way, nothing seems to intervene between that and the appearance of the words in consciousness. If one is talking or the situation is one that demands or permits expression, the words come at once.

Occasionally, the formulation in words is slightly in advance of actual expression, but that need not be the case, and ordinarily is not unless one is talking in dictation or some other circumstance demands unusual slowness of speech. Most of the description of what intervenes between thought and formulation in language is of this negative character. No idea, or at least but the vaguest and apparently the most inadequate idea, precedes the appearance of the words, or even the actual speech or writing. There is never or extremely rarely a sequence of ideas that comes before speech and can be said to be sufficiently detailed to be translated into words. Speech comes at once as a result of the intention and of the conditions under which thinking takes place, and for no reason other than that the situation and fulfilment of the intention to speak demand the words.

In the large it may be said that the cerebral or mental mechanism of itself gives forth the words that are appropriate. What one can be seen to do is to pass upon this product as to its adequateness to the purpose in hand. This judgment may be passed either after the intention has been formulated in words, but before expression, or in ordinary conversation after the words have actually been spoken. In writing it is more usually the case that one thinks what is to be said first and then writes only after the sentence has passed inspection. In conversation one may reject an entire sentiment that presses for expression, one less frequently may notice that one has a word in thought just ready to speak that is not suitable, that will not pass the subjective censor, but much more often than in writing one actually gives expression to a thought and then sees that it is not what was intended. One must then modify, usually with an apology that that was not what was intended. Two problems naturally arise in connection with the problem. The first the one already mentioned and postponed: what is it that determines the word that shall come to mind?, the second how is one able to pass upon the expression that is thought of or that has been spoken to determine that it is or is not what one desired to say? Both processes are alike in that they can not be definitely observed by the speaker, but can only be studied indirectly through observing under what circumstances they go wrong and under what circumstances they lead to desired results.

The process of censoring is not unlike the processes of recognition and of passing upon the truth or falsity of a statement that has been heard or a conclusion that has been attained, or like the criticisms that are passed upon works of art, upon esthetic creations. It probably depends, like all of the others, upon the wide-reaching associates that have been developed in past experience, which are aroused, sometimes completely, sometimes latently or partially, by the words

as they are suggested or uttered. Often one notes that a word that has been thought of in one connection under the influence of one mental attitude or setting, will arouse an entirely different group of associates in a mind dominated for the moment by another idea. The second possible setting suddenly presents itself just after the phrase has been used, and the associations that result are seen to be not at all in harmony with the intention that is controlling the expression as a whole. On the purely formal side one may become aware after the formulation that some definite rule of grammar has been violated, or some other accepted generalization of good practise may suggest itself with which what has been said will not square. On the whole, however, the judgment is passed in terms of unformulated past experience. The sentence pleases or does not please at once. Then on the side of mere expression one usually looks first to see what it is that does not please, that is awkward or worse, then discovers the part of the expression that is wrong, and finally may decide how this is wrong and why by reference to rules and canons of good taste. It is striking that in this as in so many similar judgments the recognition that something is wrong is much more likely to come before the appreciation of what it is that offends. Just as in the simpler comparisons or judgments one can tell that two sensations are different before it is possible to say how they are different. One can say that one tone is different from another before he can say which is higher. In passing on the truth or falsity of an argument it is nearly always the case that one decides the formulation to be incorrect before it can be said what is wrong, and it is only still later that one can say why it is wrong.

The same process can be traced in much the same way as for language in the judgment of a picture, a house, or any work of art. One first is impressed that it is unsatisfactory or inadequate, then turns to the analysis of detail, and finally makes reference to accepted rules of practise, if he knows them, to justify his criticism. The first vague dissatisfaction comes not only first, but much more frequently than either of the others. One is frequently certain that a statue or a sentence is unsatisfactory without ever being able to refer the dissatisfaction to its cause. The occasion for the dissatisfaction is to be found in some group of factors that do not come clearly to consciousness. The same group of associates that cluster around a mental state to give it meaning, also seem to be active in censoring the products of consciousness. They are not of themselves conscious in this activity any more than they are in the meaning, but nevertheless they are the final arbiters of expression, as they are the final determinants of meaning. It is not at all unlikely that the same set of associates that in one case gives meaning to the word or phrase

as it presents itself in the discourse also serves to decide that it is appropriate or the reverse when the expression is censured. Usually the expression merely passes muster; there is even no explicit thought as to whether it is or is not satisfactory; but when some false note is sounded it is usually because a new set of associates different from those which gave it meaning, is aroused to pass upon it. From the standpoint of instruction the most effective means of improving the taste seems to be not in giving rules in explicit formulation, but in acquiring familiarity with the best in expression, with the best literature, with the approved in conversation. This experience and this alone will give the background against which one's own language may be judged. Practise in recognizing solecisms will help, but unless the other background is present, unless there is a wide experience with correct expression, the censorship is likely to be lax or perverted. Rules, too, have their place, but are helpful for the most part only after some skill in detecting inaccuracies has been developed; they are used only to justify a correction or rejection, not to detect it in the first place.

Decision as to whether the meaning is adequately expressed rests upon exactly the same basis and follows the same course. It is much more closely related to meaning than is decision on the grammatical accuracy or esthetic qualities of the expression. If there is conflict between the associates that a phrase suggests and the intention of the speaker, the phrase is immediately rejected. One tries again if the phrase has not been spoken, and may keep trying until some group of words presents itself that satisfies the censor; then expression proceeds. If one is conversing or speaking before an audience, and it is necessary to withdraw the statement, one says, "That is not what I meant" and substitutes another expression, or the meaning is made clear by a series of explanatory statements, that seem to elucidate, but which may merely annul and replace, the original statement. The process of judging is largely concealed; one sees only the result. The experiences that happen to be active at the moment pass upon the statement. One can be sure that these are active only because one sees that phrases that are accepted change with the accumulation of experience. The method by which they pass upon it one can not see. A statement is rejected at once or accepted at once; one only occasionally sees why. So far as the process can be traced, it appears to lie in the fact that when expressed the phrase arouses associates that were not aroused by the intention, or, as said, it is seen that it might suggest ideas that were not suggested by the intention or the other mental content, whatever it may have been that preceded the speech. These associates are seen not to harmonize with the intention, although the words as viewed in the first way

suggested nothing incompatible with the earlier intention. But the process of deciding whether these associates are or are not in harmony with the intention is exactly the same as that which rejects the phrase. In each case earlier experience passes immediately upon its fitness. Only its effects are seen.

When we seek to determine the conditions which lead to the formulation of the phrases and sentences or larger wholes of speech we find them to be in large part concealed. Ultimately the process resolves itself into a matter of association under the control of the general setting, the intentions and what not that are prominent at the moment. The first association is between the intention and the form of sentence that is to be used. Such a difference as that which gives rise to the indicative or the interrogatory sentence, for example, must depend upon a connection between definite purpose and a definite arrangement of words. There is, of course, no explicit intention to use an interrogatory sentence, but the antecedents which make the speaker desire to obtain rather than to impart information lead to the appearance of the verb before the noun. There is, of course, nothing more than an habitual association between a desire of this sort and the particular arrangement of words, as is evident from the different expression of the question in different languages. The interrogatory mood governs the associations between the single words together with the particular need for information, and an appreciation of the fact that the person present may supply the information is sufficient to start the formulation or expression of the sentence. Once started the connections between the words that have been used before in similar cases, guided always by the wider purpose or intention, serves to carry the sentence to its end.

Similar purposes and intentions serve to determine other matters of form of expression. Thus as Owens has pointed out,¹ there is practically no difference in the ideas expressed by the passive and the active voice. One is chosen rather than the other because of the prominence of one element or another in the thought to be expressed. If the speaker is interested primarily in the thing acted upon, that is made the subject and thereby made prominent; if the agent or the action is of greater interest, that is made the subject. Aside from the immediate intention one finds that a number of other circumstances may play a considerable part in determining the form of speech. Thus the type of all speech, the simple interjection, comes under the influence of emotion. An idea that might be expressed in a full sentence in usual circumstances calls out under surprise or anger or other strong emotion merely the single word, and that in the

¹ Owens, "The Relations Expressed by the Passive Voice," Transactions of Wisconsin Academy of Sciences, Arts, and Letters, XVII., Pt. 1, pages 1-65.

form of an exclamation. Similarly the distance of the hearer makes a difference in the form of expression. What would be expressed at length to one near at hand will be communicated in a word if the hearer is several hundred yards away. The shepherd cries "wolf" to his master, while the summer visitor may express no more in a long and leisurely disquisition on the event to his companion in the stage.

Once a particular form of expression is started in response to the intention guided by the emotional attitude and external condition, the continuation of the expression, whether thought only or expressed, is largely due to associations between the words themselves. In a language spoken fluently no thought is required for a phrase once started. The words fuse by association into larger groups, sentences, or phrases, and these even may associate into groups. One of these groups may be touched off by any appropriate stimulus, and when thus touched off runs to its conclusion of itself without conscious guidance, with no more than the censorship, and even this is aroused only by a mistake of some sort. One returns a greeting, will respond to a remark about the weather without thinking. The set phrase of response is merely associated as a whole with the phrase heard. Much the same relation is established in connected thought and discourse between general intention and special sentence and even between phrase and phrase, always, however, guided by the general purpose that has led one to think and subject to the censorship of past experience as to both matter and form. In the larger aspects, the different ideas suggest one another as large general ideas; each of these may suggest a series of subordinate but still general ideas, and these in turn less general ideas that in turn suggest the particular sentences. The ideas are of the vaguest sort and need not be more than intentions. These finally serve to suggest sentences and then phrases and words.

To go back to the discussion of Wundt's theory, in abstract thought one can not say that language comes as a result of the analysis of an idea present before speech begins. The most that can be said is that there is a general intention first, that this general intention arouses a series of associates in verbal form. The analysis, if present, is only of a logical concept, not of an actually present idea, or of any psychological entity. The results of these analyses are for the most part larger groups rather than single words. The words come by association with one another and with the general ideas. The course of each thought is really much more a development of its meaning than a mere analysis of what was present in it. What develops was in no sense present before the development.

Even if one considers the sort of thinking and speaking that most

nearly follows the description that Wundt sets forth, the description of some object or scene that is held before the mind's eye, the process is necessarily not merely an analysis. If one attempts to recall and describe a scene from the past, even if a visualizer, one will have at first usually a comparatively vague outline of the scene, sometimes only a symbol for it; as he proceeds the different parts of the scene become clear one after the other. It is very difficult to say whether these new elements are analyzed from the mass that is actually present or whether they are added by association with what was thought of before. In most cases the process is at least a mixed one; something is added by association even if something is analyzed from the preliminary idea. One may say quite confidently that in no case is there a preliminary idea from which the different ideas that are represented in the words are analyzed, without being added to or suggested by preliminary ideas.

It is interesting to note also the division that Wundt makes of sentences into two groups, the apperceptive and associative. The one would be constituted by the sentences that correspond to the analysis of a preliminary idea, the other to instances in which subject is added to predicate by mere association. That one in which most comes from the preliminary idea was the apperceptive or closed form, that in which practically all was due to the addition of new elements, the associative or open form. The former was used in abstract thought, the latter in description. We have seen, however, that in practise abstract thought usually is the result of associative additions; description alone shows signs of a preliminary idea that can be analyzed. On the other hand, there is always a preliminary intention, a forewarning of what is to be said in a symbol with a meaning. The development of this meaning constitutes thinking and the formulation of the sentence, processes that go hand in hand. This holds both for abstract thought and for description. The intention at once guides and controls the associations that give rise to subordinate ideas and to their expression in words, and passes upon their adequacy to express the meaning, to carry out the intention. There are differences in the degree in which the associations may be controlled by the purpose, but nothing more. The types of expression are fundamentally one. Classifications, in consequence, are bound to shade into one another rather than to have sharp lines of division.

Nevertheless, the fundamental notions of the nature of a sentence which Wundt holds must be held against the older schools. The unit is a preliminary idea that develops in the sentence, and this preliminary idea or intention is itself determined by wider antecedent intentions and in its turn determines the later and subordinate meanings or intentions; the sentences and the words are subordinated to

all. They are not the units as they have often been made. It is from this fact that the end of the sentence may control the beginning as well as the beginning control the end. No part can be isolated from the whole, and in the whole must be considered the antecedent thought, large masses of earlier experiences, the present environment, particularly the social environment, the emotional as well as the intellectual condition of the individual at the time of speaking.

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INDIVIDUAL DIFFERENCES IN BELIEF, MEASURED AND EXPRESSED BY DEGREES OF CONFIDENCE

THE present study only reports in part results obtained from a series of experiments with common beliefs. Among the classes of material used in related series of experiments are horizontal lines, handwriting, and tones. Complete results of all of these experiments will soon be published. Our diverse kinds of material were employed in an experimental endeavor to give quantitative meaning to the degrees of confidence a person experiences while making various kinds of judgments.

The present investigation throws considerable light on individual differences, especially when a scale for measuring "degrees of confidence" is used. The experiments herein reported afford answers to three problems:

Problems.—1. We may assume that objects, with as great differences between them as one wishes, will be discriminated by every one with absolute certainty. It will also be granted that objects, with sufficiently less differences between them, will be discriminated by every one with something less than absolute surety. The problem then arises: What is the correlation between an individual's "degrees of confidence," and the "differences discriminated" by him? As these differences become larger, will his increasing confidence-strength in their discrimination be nicely graduated to the increasing objective differences? What differences are here found among individuals? What are the probable causes of such individual differences as appear?

2. Does the correlation, in the case of an individual, between "degrees of confidence" and "differences discriminated," bear a significant relation to a correlation (in the case of the same individual) of his judgments of discrimination and those of a large group of persons? That is, does an individual's high or low approximation to a social standard bear any definable relation to his own correlation of *confidence* and *discriminated difference*?

3. Can subjective confidence be defined and quantitatively measured in terms of objective differences discriminated? This problem has a special significance with reference to the highly subjective material (beliefs) of our experiment.

Material.—Twenty-five beliefs, or statements (as we prefer to call them), were selected in the following manner. Dr. E. K. Strong had recast and revised sets of beliefs, used in previous investigations: he had a usable set of about fifty. From this set the author drew twenty-five by chance. Three of those drawn, which Strong had found to be uncertain in their behavior, were exchanged for three others. Our twenty-five statements, with their identification numbers, follow.

2. "There exists an all-wise Creator of the world."
3. "Easy come, easy go."
4. "Traffic in alcoholic beverages, except for medicinal purposes, should be nationally prohibited."
5. "Only the good die young."
9. "For the benefit of the individual an eight-hour working day should be strictly enforced."
10. "Breaking a mirror brings on seven years of misfortune."
11. "See a pin and pick it up, and all the day you'll have good luck."
12. "The happiest life for woman is the married life."
13. "The maternal instinct is strong in most women."
15. "Geo. Washington was a real person."
17. "Virgil wrote the 'Æneid.'"
21. "Our Republic will endure another hundred years."
22. " $2 + 2 = 4$."
23. " $2 + 4 = 7$."
24. "The moon is larger than Jupiter."
26. "The earth is practically round."
33. "Christianity is losing its influence in this country."
34. "The people of the world are becoming better."
35. "It would benefit the majority of young men to attend college."
37. "Women should have the vote."
39. "Music more nearly approaches the divine than does poetry."
46. "Death ends personal existence."
47. "The whale swallowed Jonah."
48. "Man is free to work out his own salvation."
50. "Blessed are the meek, for they shall inherit the earth."

Conduct of the Experiments.—The subjects for these experiments were thirty-five students of Barnard College, members of Professor Hollingworth's classes in experimental psychology; all had had considerable experience in similar kinds of work.

In the first experiments, the girls arranged the twenty-five statements in an order of belief-strength. The Order of Merit Method was employed. Most of the subjects had two trials, separated by about a week. In no case were they aware that a second trial was to

follow the first. Each student was given a set of the statements, with the following directions:

BELIEF

Arrange these in an order; first select the one you *believe the most*. Second, select the one you *believe next strongly*, and so on, until the one you *believe the least* is selected last.

The second experiment was conducted by the elaborate Method of Paired Comparisons; that is, every statement was compared with every other, by each of the thirty-five subjects. Thus, with the twenty-five statements there were *three hundred* comparisons or "tests." Each subject was provided with blanks, on which were printed the identification numbers of the tests in order, from 1 to 300. Duplicates of the statements were provided, so that each subject had ready at hand the "three-hundred-comparison-test" material,—three hundred cards, to each of which was fastened two statements to be compared. To avoid a possible space error, the positions of identical statements on successive cards were changed. For example, the card for Test No. 1 had statement 2 on the left side and statement 3 on the right; but the card for Test No. 2 had statement 4 on the left and statement 2 on the right side. The usual way of conducting an experiment by the Method of Paired Comparisons was followed.¹ The written instructions were as follows:

These statements are to be compared according to the *strength* of your *belief* in them.

1. In each of the 300 comparison-tests, to the right of each test-number (on blank provided), record the number of the statement in which you *believe the more*.

2. Then,—using the scale for Degree of Confidence,—also record your *degree of confidence* in your decision.

The scale of confidence employed was derived from similar scales of other workers. The form of our present scale, while embodying all of the merits of earlier scales, has this advantage: a definition of each degree of confidence in three different ways, together with at least *a priori* equal differences between each of the four degrees. Even before beginning the experiments, the author did not think that the different degrees of confidence would mean the same to any two subjects, or that any one person would be able, in the actual experience of an experiment, to hold (subjectively) to the *a priori* set equal degree-differences of the scale. Those who took part in the experiments were instructed to hold to the defined conditions of the scale as closely as possible. Any person, after a very little experience with the scale, came to attach his own subjective and precise meanings to each degree of confidence, and consistently to maintain

¹ Titchener, "Experimental Psychology, Student's Manual, Qualitative," pages 92-95.

his own set differences between each step (unequal as these differences often were).

The scale follows:

DEGREE OF CONFIDENCE

Use a scale of *four degrees*, as follows:

- 0 = A mere guess. Lack of confidence.—Absence of any surety.
 1/3 = 33 1/3 per cent. surety.—Somewhat certain.—Some confidence of being right, but faintly so.
 2/3 = 66 2/3 per cent. surety.—Very certain.—Reasonably sure. Considerable confidence of being right.
 3/3 = 100 per cent. surety.—Absolutely certain.—As strong a confidence as one would have under these particular conditions.

Calculations of Results.—The results of the second experiment, that by the Method of Paired Comparisons, were calculated in the usual way. In the course of the 300 tests, each statement appeared equally often, and thus had a chance of being chosen in preference to any of the others. The statement that was chosen or “believed the more” the largest number of times by any one subject was ranked first in her *scale of belief-strength* (such we may call it, in so far as the 25 statements used are concerned); that statement which was preferred the next to the greatest number of times by any subject was ranked second in her *scale of belief-strength*; and so on, with the times preferred of the 25 statements, the one preferred the least number of times (or not at all) being ranked last or twenty-fifth in the individual’s *scale of belief-strength*. Thus, by an elaborate series of tests, a scale of *belief-strength* was obtained for each of the thirty-five subjects. We then turned back to the original records, on the filled-out blanks of 300 tests each. In this case we were not concerned with the particular statement chosen in each case, but with the *degree of confidence* attached to that choice or decision (see “written instructions,” above). Now, what is meant by saying that a certain degree of confidence is “attached to a decision”? There is a discrimination of difference, with reference to any two statements involved in any one of the 300 tests. The confidence is not attached to the belief chosen, for had that same chosen belief been compared with some other one (more like or more different), the confidence would have been different in many cases. Thus, “ $2 + 2 = 4$ ” being compared with “ $2 + 4 = 7$,” the confidence will be “ $3/3$,” or “3,” in most cases; but if “ $2 + 2 = 4$ ” is compared with “The earth is practically round,” may not the confidence be often less than absolute? As a matter of fact, it generally was. Therefore, if the confidence is not attached to the statement chosen, we must say it is attached to both of any two compared, that is, to the difference that a person discriminates between them. To ascertain what any such dif-

ference discriminated (or "paired comparison rank difference," as we shall hereafter call it) is, we have only to refer to our subject's scale of belief-strength (described above). Consequently, the procedure was as follows. A tally sheet was prepared for each girl, with P. C. (paired comparison, rank differences ranging from 0 to 24, the greatest possible difference in any individual's scale of belief-strength. The beginning of such a sheet follows:

SUBJECT 1. TALLY SHEET

P. C. Rank Differences	Degrees of Confidence	Average Confidence
0	0000 111 22	0.78
0.5		
1.0	000 11111	0.63
1.5	0000 11 22	0.75
2.0	0000 11111111111111 22	0.90
2.5	000 1 2 3	1.00
3.0	00 111112222 3	1.33

The Degree of Confidence (in one and all of the 300 tests) was first noted (it being 0, 1, 2, or 3). This Confidence was put on the tally sheet opposite that P. C. Rank Difference, which was the difference between the two statements compared, as ascertained by subtracting the ranks of the two statements on the subject's scale of belief-strength. We thus treated the confidence in each of the 300 tests, for any one individual. (The results of each person were computed without reference to any other.) Since several pairs of statements would have the same Rank Difference, in any one's scale of belief-strength, there are generally several entries (on the tally sheet) under Degrees of Confidence for each P. C. Rank Difference. Thus (above) for Difference 0 there are nine entries, for Difference 1.0, eight, etc.

Thus any one of our tally sheets has two significant columns, the first and the last (see above): (1) a column of *rank differences*, and (2) a column of *average confidences*, one for each rank difference. We next correlated these average confidences with the rank differences, or "differences discriminated" (see Problems, 1, above). This was done for each subject separately, without reference to any one else's records. In making the correlations, the following formula was used:

$$r = 1 - \frac{6(\sum d^2)}{n(n^2 - 1)}$$

The results are given in Table I.

In addition to the above correlations of each subject, without reference to any of the others, the *median* confidence, for all of the subjects, for each rank difference, was calculated. These *median confidences* and *rank differences* were correlated, with a resulting coefficient of +.956.

TABLE I

*Correlations of Degrees of Confidence and Differences Discriminated
These Coefficients of Correlation are All Positive*

S	r	S	r	S	r	S	r	S	r
7	.705	31	.833	5	.863	34	.896	29	.920
3	.750	27	.846	14	.864	28	.900	32	.921
21	.791	24	.851	13	.872	30	.903	22	.927
10	.809	11	.853	25	.879	18	.905	2	.928
9	.816	15	.854	16	.881	1	.906	17	.933
35	.817	20	.854	12	.887	4	.911	33	.948
19	.828	6	.854	23	.891	26	.911	8	.961

“ S ” refers to the subjects, by identification numbers.

With reference to the second of our problems (see above), a “social standard” or position for each of the twenty-five statements was obtained in the following manner. Seventy-four different persons judged the statements, or ranked them in order of belief-strength. Both the Order of Merit and the Paired Comparisons methods were used. There were 146 judgments concerning (or rankings of) *each* of the 25 statements,—3,650 judgments in all. Our result was a group or “social” position for each statement. This position, in the case of each statement, was the *median* of the 146 rankings of that statement. Thus we secured 25 “group medians,” our “social standard.”

For each of the 35 persons the rankings in the one or two trials by the Order of Merit Method were averaged with the rankings of the set of statements secured as a result of the Paired Comparisons experiment, to secure, for each subject, an average, individual position for each belief. For each observer, then, her average order of ranking of the 25 beliefs was correlated with the “group medians” (described in the above paragraph). We thus found each individual’s high or low approximation to a fairly reliable social standard. For the purposes of the present report, these coefficients need not be given.

We have now secured two sets (of 35 each) of coefficients of correlation, the one last mentioned, and that of Table I. (above). Each individual has two coefficients, one measuring her “tendency towards concomitant variation” of confidence and discriminated difference, the other measuring the same relation with respect to her approximation to a social standard. To secure a quantitative answer to the second problem,—the two sets of coefficients (with measurements of the two traits in question for each of the 35 observers) were correlated. The resulting coefficient was —.035, or practically zero. That is, under the conditions of this experiment, the two traits are absolutely devoid of correlation. We are warranted in saying that an individual’s nicely graduated increase of confidence to corre-

spond to a graduated increase in her differences discriminated, will *not* enable us to make any inference whatsoever regarding the fact of her high or low approximation to the social standard of her fellows.

There yet remains the third problem: with the highly subjective material used, can subjective confidence be quantitatively measured in terms of objective differences discriminated? I believe I am able to show that it can. The reader should refer back to the part of a sample tally sheet. The procedure was to ascertain the *differences discriminated*, or "*rank differences*," corresponding to the *median* of the *average confidence* (for each subject). In the tally sheet, these average confidences are found in the last column. Zero confidence was defined as any degree of confidence from 0 to 0.99 (thus including such figures as, "0.78," "0.63," etc.); confidence 1 was defined as any degree from 1 to 1.99 (thus including such values as, "1.00," "1.33," etc.); confidence 2 was defined as any degree from 2 to 2.99 (inclusive); and confidence 3 was the highest possible degree. Now, average confidence zero has a range of from 0.00 rank difference to difference 3.5 (not all to be seen in the part of the sample tally sheet given). In the case of the same subject, average confidence 1 has a range of from rank difference 2.5 to 6.00 (with a median at 5.00). Average confidence 2 has a range of from difference 4.00 to 15.00. Average confidence 3 has a range of from 10.00 to 24.00 (the highest difference discriminated in the case of this subject). In her case, the rank differences corresponding to the medians of each degree of average confidence were as follows: confidence 0, 1.5; confidence 1, 5.00; confidence 2, 9.00; and confidence 3, 18.25. In the same way, median rank differences for each of the four degrees of confidence, for each subject, were obtained. Thus, for each degree of confidence, we have a series of 35 (the number of subjects) median rank differences. For each series, the median and the mode were found, which values may be regarded as *objective* measures of the subjective degrees of confidence. Table II gives the facts.

TABLE II

Subjective Confidence Defined in Terms of Objective Differences Discriminated

Degrees of Confidence	Medians	Modes	Q.
0	1.50	1.50	0.50
1	4.25	3.50 and 4.00	0.88
2	10.50	11.50	1.50
3	18.00	17.75	1.13
Differences Between Confidences			
0 and 1	2.75	2.25	
1 and 2	6.25	7.75	
2 and 3	7.50	6.25	

Thus, with the persons tested, we see that, quantitatively and objectively, the steps taken in passing from any degree of confidence to the degree next higher are very unequal. A problem arises at this point, which we will not attempt to solve. Assuming the logical soundness of the statement: "That we pass by degrees from one thing to another, is no sign that the things are of the same nature,"—we may doubt whether the different degrees of confidence are of the same nature. But especially does this become a significant problem, in the light of the great inequality of differences between the degrees.

I believe that it has now been shown that confidence can be *objectively* defined. An objection may arise as to the use of the word "objectively," to refer to an individual's scale of discriminated differences (in terms of which are the medians and modes of Table II.) in connection with such subjective material as beliefs. While, it may be urged, a certain belief is chosen the greatest number of times (in the Paired Comparisons experiment) and ranked first, another is chosen a next fewer number of times and ranked second, and so on, until the one chosen least often is ranked last,—the one ranking first *could* be preferred say 24 times, the second in rank could be preferred say 23 times, but the one ranking third *could* be chosen only 17 times (provided none were preferred 18, 19, 20, 21 or 22 times), while the fourth in rank could be chosen *any* number of times—less than 17, not to mention the possibilities of several statements each being chosen the same number of times. Clearly, in such cases, an individual's scale would be anything else than "objective" (in the sense that a foot-rule, for example, is an objective scale). To show that this very legitimate objection is groundless in the present study, we tabulated the number of times that each belief (of course regardless of what particular one it might be) was chosen by each subject—in order, from largest to smallest number of times preferred. For Subject No. 1, for example, the order of times preferred is as follows: 24, 23, 22, 21, 19, 18, 18, 17, 17, 15, 13, 12, 12, 12, 11, 10, 8, 5, 5, 5, 4, 3, 3, 2, 1. It is seen that the steps of this scale are about equal, though this particular individual had more identical numbers of times preferred than most of the thirty-five. The order of times preferred of all the subjects was strikingly similar. Average times preferred for each step (of the 25 in all of the subjects' scales of discriminated differences) were computed. These averages, with their average deviations are found in Table III.

Thus our *average* scale of discriminated differences in terms of times preferred clearly shows that the material employed afforded a scale of steps very nearly equal. While this measuring-rod is not as absolutely "objective" as a foot-rule or a pair of balances, I think we are justified in using the word "objective" and in concluding that,

even with such material as beliefs, subjective confidence can be measured and defined in terms of objective differences discriminated.

TABLE III

Average Times Preferred	A. D.	Average Times Preferred	A. D.
23.95	0.10	11.20	0.67
22.83	0.28	10.03	0.33
21.77	0.40	9.11	0.40
20.74	0.50	8.09	0.42
19.37	0.57	6.89	0.51
18.46	0.65	5.91	0.47
17.37	0.58	4.91	0.47
16.74	0.53	4.00	0.34
15.94	0.54	3.31	0.47
15.17	0.47	2.57	0.55
14.23	0.40	1.40	0.53
13.29	0.65	0.34	0.46
12.37	0.75		

We are now in a position to consider more carefully certain aspects of the first problem. The conclusions reached are summarized in Table I. (above). In this table we have positive proof of a very high correlation between *degree of confidence* and *difference discriminated*. As such differences become larger, increasing confidence-strength in their discrimination is nicely graduated to the increasing objective differences. Such is the accepted meaning of a coefficient of correlation. In no individual do we find a low degree of confidence for a small difference, remaining low, until the objective difference has grown to considerable proportions, and then "jumping" to a higher degree; on the contrary, the mutual relation is one that is "nicely graduated"; the tendency is towards concomitant variation.

So much for any and all of the subjects. In the statement of our problems (above), the question was also asked, "what differences are here found among individuals?" Table I. (above) shows these individual differences at a glance. The coefficients range from $+ .705$ to $+ .961$, with a median at $+ .879$. While the individuals arrange themselves in a fairly continuous series, the difference between the extremes is large enough to warrant an attempt at answering the further question (set in the statement of problems): "What are the probable causes of such individual differences as appear?" At the present stage of our investigation, and with the very inadequate knowledge of individual differences in general, only a probable and tentative answer can be now given.

As a possible cause of these differences among individuals, we may consider individual scales of belief-strength (or rank differences), with which the average confidences were correlated. Perhaps different people had such scales of very unequal steps (as determined

by the number of times the different beliefs were chosen in the paired comparisons experiment), that our resulting series of coefficients were thereby caused to differ (Table I.). Table III. (above), and its explanation, proves that such was by no means the case. On the contrary, the "A.D.'s" of Table III. clearly prove that the thirty-five observers had scales of belief-strength almost identical at each step.

As another cause of the individual differences of Table I., it might be thought that the subjects gave the different degrees of confidence rather different values (as objectively determined in Table II.); it will be remembered that we there measured confidence in terms of objective differences discriminated, or "rank differences." The reader, at this point, should refer back to the discussion immediately preceding Table II.

For each subject, the A.D. of the average difference between the objective rank differences for each of the four degrees of confidence (of that subject), gives a measure of *how unequal* were the steps between the four degrees—of *how different* were the objective values assigned to each degree. The larger the A.D., the greater is the inequality of the degrees with reference to each other. The smaller the A.D., the more equal are the steps from one degree to each succeeding degree. Will persons differing widely in this respect reveal a corresponding individual difference, as shown in Table I.? To obtain a quantitative answer, the thirty-five A.D.'s (one for each subject) secured were correlated with the coefficients of Table I. The resulting coefficient was $-.02$. Again we have failed to find a cause for our individual differences.

The fact that, by nature, some individuals are more conservative and others are more radical and confident in most of their decisions, may possibly explain the individual differences in question. From the definition and construction of our scale of confidence we may assume that a *conservative* person would, when making his judgments, set Confidence 3 at a much greater distance from Confidence 0, than an individual of more *radical* turn of mind—one inclined to be absolutely sure of most of his opinions and beliefs. Therefore (the reader should again refer back to the discussion immediately preceding Table II.), the conservative person would show the *greater* differences between the objective rank differences of confidences 0 and 3 (the extremes of the scale); and the radical individual would show the *less*. Perhaps the individual differences of Table I. may be partly due to some of the observers being more radical or more conservative (in the sense defined) than the others. To determine this—for each subject—the objective values secured for confidences 0 and 3 were subtracted. The 35 results (forming a series, measuring the trait in question for all of the subjects) were correlated with the

coefficients of Table I. The resulting coefficient was $+.435$. This figure is not high enough to afford positive proof that we have discovered a cause of the individual differences; it does show a tendency for the more conservative persons to have the higher coefficients (Table I.). Further investigations are needed, with this and other material, that we may follow up this very possible cause of individual differences.

Summary of Results.—First problem: 1. A high degree of correlation was found between an individual's *degrees of confidence and differences discriminated*: increasing confidence-strength is nicely graduated to increasing objective differences. The coefficients of correlation range from $+.705$ to $+.961$, with a median at $+.879$; when the median confidences (for all of the subjects) are correlated with the differences discriminated, the resulting coefficient is $+.956$.

2. The range of values for the coefficients, just mentioned, show marked individual differences.

3. As to the probable causes of these individual differences: it is found,—first, that inequality of the steps in the individual scales of belief-strength can not be regarded as a cause,—second, it is seen that persons differing widely as far as giving the different degrees of confidence different objective values, do not reveal a corresponding individual difference,—third, a coefficient of $+.435$ shows a tendency for the more conservative persons (in the sense defined) to have the higher coefficients (Table I.), but further investigations must follow up this possible cause of individual differences.

Second problem: 4. Under the conditions of this experiment, an individual's nicely graduated increase of confidence to correspond to a graduated increase in differences discriminated, will *not* enable us to make any kind of inference regarding the fact of her high or low approximation to a social standard.

Third problem: 5. We find that subjective confidence can be quantitatively measured in terms of objective differences discriminated, even with such material as common beliefs. The amounts of difference between the four degrees of confidence are as follows: between 0 and 1, 2.75; between 1 and 2, 6.25; and between 2 and 3, 7.50 (Table II.).

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REVIEWS AND ABSTRACTS OF LITERATURE

Les Arriérés Scolaires: Conférences Médico-Pédagogiques. MARCEL NATHAN et HENRI DUROT, avec la collaboration de M. GOBRON et de M. FRIEDEL. Paris: Librairie Classique Fernand Nathan. 1913. Pp. vi + 361.

The problem of the backward child has, during the last few years, attracted a great deal of attention in educational circles in this country. Statistics compiled by the United States Bureau of Education some years back called attention to the magnitude of the problem. The investigation conducted by the Russell Sage Foundation and published by Dr. Ayers under the title "Laggards in Our Schools" shows that nearly one third of the pupils attending the public schools of the United States are more than two years behind in the development which is expected by the curriculum. Of course it is not true that all of these children are suffering from arrested mental development in the neurological sense of the phrase, but physical defects are present in a large number of cases and it is quite necessary that pupils who need special care should be picked out by the principal or the teacher and proper medical treatment secured.

The work before us is admirably adapted to meet the needs of the situation. There is a lucid presentation of the normal structure and functions of the central nervous system given in the opening chapters. Many teachers who might attain sufficient knowledge in this field to be of service to the school are deterred by the complexity and the difficulty of the subject. It would be difficult to find a simpler presentation of the essentials. The opening chapters are followed by a similar brief but lucid statement of the more prevalent forms of nervous disorders. The closing chapters deal with the practical applications of the truths developed in the earlier chapters. An English translation of this work would prove serviceable.

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The Learning Process. STEPHEN SHELDON COLVIN. New York: The Macmillan Company. 1911. Pp. xxv + 336.

One of the best books on those phases of psychology which apply to education is that by Professor Colvin on "The Learning Process." Besides treating of the fundamental elements in the learning process and applications of the general principles, the author gives the latest work done in connection with habit formation, perception, imagination, memory, association, and transfer of training. The author does not attempt to present any theories of his own, but simply gives, in an impartial manner, the results of recent research on the topics in question. The book is along the same lines as Bagley's "Educative Process" (but somewhat more up-to-date), and as Sandiford's more recent volume on "The Mental and Physical Life of School Children." Professor Colvin is especially strong in his treatment of children's testimony and perceptions, of memory and the transfer of training. He is weaker in his consideration of

attention and interest, a vast amount of literature being here overlooked. But, since Dr. Colvin follows Titchener and Stout in this field, his work can not fail to be good. For classes working in applied psychology, educational principles, or the theory of study and learning, the book can not well be neglected. For the practical teacher, likewise, much practical information and a great many sound directions are given. Further comment on Professor Colvin's book seems unnecessary, inasmuch it is now considered a standard, and is in the hands of most of the progressive students of education.

FELIX ARNOLD.

NEW YORK CITY.

JOURNALS AND NEW BOOKS

THE AMERICAN JOURNAL OF PSYCHOLOGY. January, 1915. *Sensations of the Alimentary Canal* (pp. 1-57): EDWIN B. BORING. - Warmth, cold, mild pressure, heavy pressure, electrical, alcohol, hydrochloric acid, oil of peppermint, mustard and pepper stimulations. The esophagus is sensitive to all the above stimuli. The rectum responds to alcohol and hydrochloric acid, but the mechanical stimulations call for defecation. The anus is sensitive to all stimuli. *A Note on the Retention of Acquired Capacities* (pp. 58-67): F. L. WELLS. - A number of tests were repeated after five and two years had elapsed with the result that the processes had slowed up very much which, in practical life, is often equivalent to what is known as "making mistakes" or "forgetting." *On Psychology as a Science of Selves* (pp. 68-198): JOSEPHINE NASH CURTIS. - A thorough analysis of Miss Calkins's self-psychology is presented. James's views of the self are clear, but do not apply to Miss Calkins's self which is considered inferior, ineffective, and inconsistent. *An Experimental Study of Sensory Suggestion* (pp. 99-129): A. S. EDWARDS. - Visual, smell, taste and temperature, auditory and tactual suggestions were given. All but hearing and touch are highly effective. *Psychoanalysis and the Study of Children and Youth* (pp. 130-141): DR. O. PFISTER, translated by F. M. SMITH. - The differences in the opinions of psychoanalists are really complementary to each other. Exaggerated views will be smoothed down and much good will come to child study. *Minor Studies from the Psychological Laboratory of Cornell University. On the Localization of Pure Warmth Sensations* (pp. 142-150): F. L. DIMMICK. - The average errors are greater for warmth than for touch. *Form versus Intensity as a Determinant of Attention* (pp. 150-151): L. G. MEADS. - A crude method is presented for judging the attention value of light forms versus light intensities. *The Determination of the Limens of Single and Dual Impressions by the Method of Constant Stimuli* (pp. 152-157): E. J. GATES. *Book Notes* (pp. 158-159).

Henning, Hans. Ernst Mach als Philosoph, Physiker, und Psycholog. Leipzig: Verlag von Johann Ambrosius Barth. 1915. Pp. xviii + 185. 5 M.

Ladd, George Trumbull. *What Ought I to Do?* New York: Longmans, Green, and Company. 1915. Pp. vii + 308. \$1.50.

NOTES AND NEWS

At the meeting of the Aristotelian Society held on January 4 "Professor C. Lloyd Morgan read a paper on 'Notes on Berkeley's Theory of *Esse*.' The well-known doctrine of Berkeley, that *esse* is *percipi*, finds expression in recent philosophy in what Professor Perry has named the 'ego-centric predicament.' A comparison was made between Berkeley's attempt to account for continuity by the theory of continuous existence within the mind of God, and the attempts of the new realism to relate sensibilia. It was suggested that the distinction between relatively perceptual cognition and the higher order of knowledge which involves conceptual terms could be best expressed by applying the term 'meaning' to the former, and the term 'significance' to the latter. Significance, then, indicates a higher level of meaning. Probably all presentations from infancy onwards carry some fringe of significance. A presented fact which carries significance is in relation to some term within the sphere of our thought, which we may call a supposal, and that which answers to the significant term in the order of nature is what we call a truth. When there is a supposal in mind, it has the relation of reference, more or less valid, to some truth in the order of nature to be interpreted.

"After noticing Berkeley's nominalism and his constant tendency to advance from his earlier position and develop the notion of spiritual substance, Professor Lloyd Morgan suggested finally that the solution of the problem of continuity might be found in a threefold order of relatedness—physico-spatial, vital, and psychical. Each was a mode of scientific explanation, the question of source not being involved. As each new order was reached an added character entered into the relation and became effective. The higher always implied the lower, but to invert the order was impossible.

"This was in keeping with the essential spirit of Berkeley's philosophy. It was his merit that he applied his principles consistently; and while he proclaimed that every effort which can be naïvely observed or significantly interpreted is dependent on the Eternal Spirit as the ultimate source of all that exists, he left to science, as he understood it, a perfectly free hand to pursue its investigation of phenomena on its own special lines."—*Athenæum*.

A COURSE of six lectures on the international crisis in its ethical and psychological aspects has been inaugurated at Bedford College, London. This course has been arranged by the council of Bedford College in cooperation with the Committee of Imperial Studies of the University of London. At the first lecture Viscount Haldane was in the chair and Mrs. Henry Sidgwick spoke on the morality of strife in its relation to the war. Lectures will also be given by Professor Gilbert Murray, Dr. A. C. Bradley, Dr. L. P. Jacks, Professor Stout, and Dr. Bernard Bosanquet.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

NATURAL RIGHTS AND THE THEORY OF THE POLITICAL INSTITUTION¹

THE term natural rights suggests the political speculations of the seventeenth and eighteenth centuries in Europe, and the various revolutions that took them in some sense as their slogans. These revolutionary movements were one after the other increasingly forward-looking, constructive undertakings, until we may fairly say that as their results we find in representative government and growing democracy, revolution incorporated in the institution of government itself. That is, the form of government has become such that in its own operation the people can by legislation and amendment change it into any form they desire and still will have acted in a strictly legal and constitutional fashion. Furthermore, in the interplay of legislation and the execution and judicial interpretation of the legislation there arise not only the opportunities, but also the legally recognized occasions for the continual reconstruction of governmental institutions, so that a constant growth may take place in the form of institutions, and government may become in its own operation something entirely different from what it was, without any break or overthrow of constituted authority. Revolution has been incorporated into the constituted form of government itself.

And this has involved a revolution itself, for such an institutionalizing of revolution has been no less revolutionary with reference to revolution itself than it has been with reference to fixed forms of government. The tendency of each revolutionary movement had been to fix itself in relatively unchangeable governmental structure, that the successes it has spent and fought for might be preserved and entrenched, and thus had prepared the appropriate situation for the next revolution that sought in its turn to build its achievements into a new structure that should hold out

Against the wreckful siege of battering days.

¹ Read at the joint session of the American and Western Philosophical Associations with the American Political Science Association and Conference on Legal and Social Philosophy, at Chicago, December 29, 1914.

In fact, the form of government in democratic countries has responded more completely to the demand for the opportunity for continual change than have the customs and attitudes of the community itself. The embedded structure of society has become more conservative than its more external forms and machinery. The possible revolutions, in the old sense, which we can envisage to-day are supposed to be directed against this inner structure such as the very producing and holding of wealth, or the procreating and nurture of children, and it is quite on the cards that these revolutions might be carried out by methods which would be strictly constitutional and legal.

It is not remarkable, then, that rights which looked very definite to the gentlemen who drew up the American Declaration of Independence, or those who formulated the bills of rights that were to justify the French revolutions, should have an entirely different aspect and meaning to-day. Life, liberty, security, property, and even the pursuit of happiness took on a definite connotation from the dangers and hindrances men sought to eliminate, the dangers and hindrances which an autocratic government could put in the way of the enjoyment of these imprescriptible rights. And when these dangers and hindrances had been removed the definitions of the rights which had been given in terms of what threatened them lost their bearings and at the same time their content. How simple and self-evident are the following definitions, taken from the declaration of rights and duties prefixed to the French constitution of September 23, 1795:

“The rights of man in society are liberty, equality, security, property.”

“Liberty consists in the power to do that which does not injure the rights of others.”

“Equality consists in this, that the law is the same for all, whether it protects, or whether it punishes.”

“Equality does not admit any distinction of birth, or any inheritance of power.”

“Security results from the cooperation of all to assure the rights of each.”

“Property is the right to enjoy and dispose of one’s goods, one’s revenues, of the fruit of one’s labor, and of one’s industry.”

“The law is the general will expressed by the majority of all the citizens or of their representatives.”

“That which is not forbidden by law may not be prohibited. No one may be constrained to do that which the law does not ordain.”

“No one may be summoned before court, accused, arrested, or

detained, except in cases determined by law, according to the forms prescribed by law."

"Those who incite, give legal form to, sign, execute, or have executed arbitrary acts are culpable and are to be punished."

"All unnecessary severity in securing the person of the accused is to be severely repressed by law."

"No man may be judged until he has been heard or legally summoned."

"The law may only judge such penalties as are strictly necessary and proportioned to the offense."

"All treatment which aggravates the penalty set by the law is a crime."

"No law either criminal or civil may be applied retroactively."

"Every individual may dispose of his time and his services, but he may not offer himself for sale or be sold. His person is not alienable property."

"All taxes are established for the common good. It should be divided among those contributing to it, according to their abilities."

"The sovereignty resides essentially in the entirety of the citizens."

"No individual and no group of citizens may take to himself or itself sovereignty."

"No one without legal commission may exercise any authority or fill any public office."

"Every one has the right to take equal part in the formation of the law, in the nomination of the representatives of the people, and of public officers."

"Public offices may not become the property of those who hold them."

"Social security can not exist if the division of powers has not been established, if their limits have not been fixed, and if the responsibility of public officers has not been assured."

Here we find liberty defined in terms of taking away liberty and other rights to be defined, equality in terms of the absence of legal distinctions, security in terms of its source, property in terms of the absence of interference with its use, whatever it may be. But to the minds of men of the year four, these definitions had definite contents, because they were undertaking to determine the conditions under which certain powers which it did not even occur to them to define might be exercised.

Now that these conditions are in large measure assured, that the danger of inherited dynastic autocratic power has largely disappeared, these same powers lack the definition which the outlining of certain conditions of their exercise gave to them, and with Taine we

may criticize the working conceptions of the French Revolution as abstract.

It is to be remembered, however, that a *working* conception can be abstract only in so far as that to which it refers for its functioning, needs only to be designated, not to be analytically defined. The abstract political individual of the seventeenth and eighteenth centuries and the abstract economic individual of the nineteenth century were quite concrete, every-day persons. They were pointed out by the negative definitions of those who speculated about them, and the negative definitions had reference to the hindrances to their activities which most interested the individuals. Thus Spinoza was interested in a community in which the inherent reason of the individual should find its natural expression, and the passions should be relegated to their proper place. Such a state would be founded by and through a *libera multitudo*, free in the Spinozistic sense that it would be conscious of its essentially rational nature. It is from the standpoint of Spinoza's theory of the passions as passive and privations that he is led to regard man as the embodiment of an abstract potentia, which by his definition comes to consciousness and so to freedom by the very disappearance of those privations which are our passions. It is the irony of Spinoza's speculation that for his conduct it was the passions, the negations, which were after all defined as to their content, while the potentia which was to exist in positive consciousness is defined only in terms of the cessation of the passions, and the conditions under which this may take place. The positive content of reason to which Spinoza arises in the denouement of his "Ethics" is a mystical emotion. But in his own struggle and in that which he predicated of all human conduct it was through the definition of what he had to overcome that he designated the individual which was to rise triumphant. This potentia has the right to express itself, but the right is defined in terms of the obstacles to its expression.

The timorous Hobbes facing the disturbances of the Puritan revolution and the worse conditions which were likely to ensue defined the individual in terms of those hostile impulses which must lead to a *bellum omnium contra omnes*. It was this human being, lifted through Hobbes's fear out of all human relationship, whose rights, recognized only in a state of nature, must be entirely surrendered to an autocratic sovereign, who is defined entirely in terms of what he must surrender to be safely admitted within a human society. There could and can be no doubt to whom Hobbes referred in his abstract definition of the individual, nor can there be any question that the definition indicates the hindrances which keep the individual out of the social state to which he belongs. In the case of Hobbes the rights

—so-called—of man are positive. They are the concrete satisfactions of every desire, just in so far as the man is able to attain that satisfaction. The individual who surrenders these rights, on the contrary, is entirely empty as a social being. He is the mere creature of the absolute sovereign.

The revolution of 1688 found its philosopher in John Locke, and its theory in his treatise on "Civil Government." Building on the very foundations which had seemed so abhorrent to Hobbes, the party that dethroned James and brought in by act of Parliament William and Mary appealed to a certain common interest which they felt to be the interest of the individual. Thus we find in Locke's account of the state of nature the whole content of social existence which, according to Hobbes, was possible only under the absolute autocrat. There is lacking only a settled statement of law, received by common consent, an indifferent judge to administer it, and an executive to enforce the decisions. But this legislation, justice, and execution is only the carrying out of actions with reference to common ends which are already in the natures and conduct of men, before the government is constituted. The government comes in only to give adequate expression and effect to natural social attitudes and conduct of men in a state of nature. There is to be found property, the family, and neighborly interest in one another. Was ever human nature so quickly regenerated as between the publications of the "Leviathan" and the "Treatise on Civil Government?" With such a human nature, so admirable in its native state, the emphasis must now be laid upon the restrictions to be placed upon government, not those to be placed upon the individual. The laws must be free from the influence of private interest, they must have in view alone the public good. The taxes raised must be by common consent, and the original power of the people to fashion its own government for its own ends must not be placed in any other hands or power.

Here we have a statement of rights of the people against any usurping, misgoverning government. And they again are negative, and yet they are the issues of the revolution of 1688, the elimination of court and dynastic interests in legislation, the vigor of parliament, and, in especial, its unquestioned hold upon the purse strings. But none of these human rights which Locke affirms over against a dethroned monarch is stated in positive form. There is no definition of the common good, nor of the purposes for which taxes should be raised and expended, nor what is the essential function of parliament. And for the purposes of presenting the case of the revolutionary party the statement was far more effective than one which had undertaken to state what the common good of the community was or in what lay the authority of the supreme legislative body.

With Rousseau the affirmation of the social character of human nature is still more emphatic. There is not only a common good that exists, and can be recognized by all, there is also a common will by which it can be affirmed and enforced. The government which Locke calls out to carry out the social nature of men is but the expression of Rousseau's *volonté générale* which, it is true, constructs a government as an instrument to carry out its purposes. This government, however, is but a means to accomplish a definite common purpose, commonly conceived, and the execution of which is commonly determined. Over against such a mere instrument, such a servant of the common interest and will, the rights of the men who make up the state are the more sharply defined, but for that very purpose negatively stated. A statement of them was given in the form of the preamble to the constitution of the year four.

The rights of man, especially those which have been called natural rights, have been the expression of certain negative conditions under which men in society and under government could express themselves. And they have been formulated with reference to definite hindrances which have brought to consciousness the powers which were seeking expression, but only in terms of the obstacles themselves. In the "Areopagitica," in the whole eloquent plea for freedom of publication, Milton undertakes no definition of what is good to print, and we are in the same case to-day. After all we are legally free to say and to print what a jury of twelve talesmen think it proper for us to say and print. If this legal situation were the actual situation and the determination of what we might say or publish did lie with any twelve theoretically good men and true, picked by the sheriff, and not with what we call public sentiment, the situation would be ludicrously absurd. However, public sentiment does not undertake to define what it is proper to print except over against the dictum of a legislature or a judge, and then it does not speak positively as to what is the nature of what may be said or printed. It approves or disapproves of the particular law or decision that is applied in the particular case, and if you undertake to formulate a right out of this, you find that you have only an abstraction.

The natural right to liberty may be rendered by the pregnant phrase that there is no freedom except under the law, which is another way of saying that nothing may be forbidden to you which must not, by the same act, be forbidden to every one else under the same conditions, although this is not all that this phrase implies; but it will tell you nothing of what you are at liberty to do. It has always been for the crushing out of exceptional privileges that our wars of freedom have been fought. Not even the statement that a man must be an end and never a means can be made a positive con-

tent, *i. e.*, can be made into a positive statement of what responsible personality consists in. In general no man is free who has not the means of expressing himself, but just what is necessary to that self-expression can not be made clear. It is probable that Epictetus was far freer than was his master, and at the present time millions of men are expressing their freedom in exposing their bodies to torture and death. I do not say that we can not formulate a fairly comprehensive statement of what has come to be the stature and measure of what the citizen should be in our minds at the present moment. We would give him undoubtedly economic freedom, an education, an association with his fellow citizens and fellow workmen that would ensure him the means of control over situations affecting his physical, social, and intellectual well-being. But of one thing we may be sure—that the next struggle for liberty, or our liberties, will arise out of some infraction that will not have reference to the definition which we have formulated of what the man should be and, consequently, of what constitute his liberties. On the contrary, we will find in all probability that the struggle will lead to a quite different definition from the one with which we started. No more illuminating instance of such a struggle can be found than in the fight of laborers for liberty to combine. The contests have always been over concrete restrictions, and every victory and defeat has left the question of what is the right to liberty of combination still undecided, though it has settled possibly for long periods to come a certain class of cases. The contents of our so-called natural rights have always been formulated negatively, with reference to restrictions to be overcome. When these restrictions have been overcome they represent a positive content of what we call for the time being our liberties. Thus we claim freedom of conscience in religious conduct. Slavery has gone by the board. Popular education, freedom of laborers to combine, etc., are mile-stones in our progress, and at each struggle we have added something to the fundamental rights of the man who is a part of the modern community. But we have also discovered that we never fight our battles over again. It is never the same question that arises again, and over against the new situation we find ourselves as unable satisfactorily to define the content of what our liberties are as our forefathers have been before us. We feel the narrow walls and brace ourselves to burst open the doors of opportunity that we find shut, but we can never apply the keys by which former doors were locked.

Historians of the theory of natural rights take pains to point out that the question of the inherent character of these rights has been confused with that of their priority to the society within which they

find their expression. The most glaring instance of this error is to be found in the common assumption of the contract theorists of society, that we can conceive of the individual citizen existing before the community, in the possession of the rights which afterwards the society undertakes to protect. On the contrary, it is pointed out that a right implies a recognition, and that this is a recognition which can not be found outside of an organized social group. Thus they deny the possibility of rights inhering in the men in the state of nature as presented by Spinoza and Hobbes, for these men have only powers, such as have the beasts of the field, but no rights. On the other hand, the state of nature which upon Locke's hypothesis precedes the compact forming the state is already a society, however deficient it may have been in governmental institutions. Had Locke had the acquaintance of our anthropologists with primitive groups he would have recognized that his precontract men would have possessed an organized group of social habits out of which indeed governmental institutions were to arise, but which already performed the functions of government as definitely as the later institutions were destined to do. Rousseau of course is subject to the same error of supposing that his socially endowed men with their recognition of each other's personalities could have existed without some form of social organization that must have fulfilled the function in some way of social control. If we are to correct their history we would substitute, for the coming together of these Lockean and Rousseauian precontract—men, the situations in which tribes that include a number of clans find the blood-feuds so costly in life and tribe-strength, that they get together to formulate a graduated set of fines and primitive courts to enforce these penalties. Here governmental institutions arise out of communities that have been controlled largely by customs that needed no institutional instruments for the exercise of their function. Here the rights that are formulated and enforced have already existed and hence have been already recognized in another form, and indeed in a true sense have been already enforced,

If we rob the term natural right of this implication of nature—that the right existed in a previous state of nature—can the term still be retained? We find that the term natural right is bound up with another very important conception in the history of political theory, that of natural law. Here the reference to nature does not imply a prior existence, but points rather to the fundamental character of the law, or in the other case to the fundamental character of the right. Here the emphasis upon *natural* sets it off against what is felt to be unnatural. Thus there is supposed to be a natural law of propinquity in marriage which throws into sharp contrast instances of unnatural marriages. And there are in the same sense

the natural rights which may be contrasted with the unnatural rights which have been conferred upon privileged classes or individuals. Thus equality has been asserted as natural to man, and freedom of movement in the satisfaction of his wants. And the term may have either a backward or a forward look.

When Adam dug and Eve span
Who was then the gentleman?

looked backward for the typical expression of human nature. Nature as Aristotle conceived it, on the other hand, reached its typical expression at the end of a period of growth or realization. And a modern evolutionist, Herbert Spencer, has presented the hypothesis of a human society that is to be the result of a process of evolution, within which there is to be complete adaptation, so that finally there will arise a human nature that is as yet only in embryo.

This conception of a right that belongs to the nature of society and that of the men who constitute that society brings us finally to the question, what beyond its recognition is involved in a right. We have seen that it comes to consciousness through some infraction, but this does not reveal its essential character. It can only exist in a society. Is it, then, conferred upon the individual by the group or society? From the standpoint of Bentham and Austin there are no natural rights, all rights being conferred, unless we accept Spencer's criticism on Benthamism that there must be assumed an original right to the enjoyment of pleasure. In any case it is the *common interest* on the part of society or those who constitute society in that which is the right of the individual which gives that right its recognition, and gives the ground for the enforcement of the right.

The attitude of the individual and of society may, however, be quite different, depending upon the point of view we adopt as to the character of the object which the individual sets before himself as his end. Is he pursuing a private end which chances to have the approval of the rest of the community? Or is his object one that is to him also a common good? Even Mill has sought to show that through indissoluble association the private end may become the common end in the view of the individual himself. Kant sought, approaching the problem from the opposite pole, to reach a like goal through substituting the good will itself for the universal form of the act, advancing then from the good will as an end to a society of good wills as a kingdom of ends. It remained for post-Kantian philosophy to find in the doctrine of the universality of the end of the individual's act, and the fact that that end must be social, being an objectification of the self, the starting-point for a theory of the state. I have no intention of discussing this theory. I wish simply to point out that

Kant, Hegel, and Mill all assume that the individual in society does in large measure pursue ends which are not private, but are in his own mind public goods and his own good because they are public goods. Here we have a basis for a doctrine of rights which can be natural rights without the assumption of the existence of the individual and his right prior to society. The right is arbitrary from the standpoint of neither the individual nor the community. In so far as the end is a common good, the community recognizes the individual's end as a right because it is also the good of all, and will enforce that right in the interest of all. An evident illustration is found in property. The individual seeks property in a form which at the same time recognizes the property of others. In the same fashion the community in recognizing property as a common social object, which is yet the end of the individual, enforces the right of the individual to his own possession. This character certainly inheres in all so-called natural rights. In all of them we recognize that the individual in asserting his own right is also asserting that of all other members of the community, and that the community can only exist in so far as it recognizes and enforces these common ends, in which both the individual and the community are expressed.

It follows from this conception that the number of natural rights will be limited and in some sense defined at any time, depending upon the meaning we give to the term enforce. If by that we imply the exercise of force majeure through the judicial and executive institutions of the community, the number of kinds or rights which can be enforced at any one time in a community will be necessarily limited. If by enforcement we imply as well the action of custom, public opinion, and sympathetic response, and indeed these are the chief forces that enforce the will of the community, then the number of natural rights which men may possess will be practically unlimited, for their common objects may not be counted. Even the most selfish end must have the form of a public good, to have any value to the private individual, otherwise it can not be his to have and to hold. It is evident that in one sense we have boxed the compass. We started with life, liberty, security, equality, pursuit of happiness, as natural rights. They were recognized as present in happiness, as natural rights. They were recognized as present in consciousness only when they were in some manner trespassed upon. They were found to be incapable of definition as to their content. From the point of view just suggested, every object that is pursued in a common or social form, implies a common good, that may demand recognition and the enforcement of the right of the individual. Here there is no limit to the number of such goods, and hence no limit to such rights. They seem to be definable in terms of con-

tents, for they are all the common interests of men and mankind, and we have them as contents ever in mind, as they are prizes of our effort, and the solace of our hours of relaxation.

This anomalous situation repeats itself when we look to the nature of human rights and to their guaranties in our political and judicial institutions. What is evident at once is the difficulty of formulating fundamental rights which are to be distinguished from the multitudinous objects, the ends of actions, that are sought through our government and courts. The problem is that of determining the distinction that is to be made between the private right which must take its chances against other demands of a like sort and the specific common good which is endangered and calls for the especial protection of our institutions. I think I shall not be subject to contradiction if I assert that in this country at least, where we have gone further than men have gone in other countries in the attempt to formulate fundamental rights in our written constitutions, and in the use of the courts in their protection, we have not succeeded in rendering definite what the rights are which should receive these guaranties, and that behind the effort to state and defend these rights have always loomed other issues, which theoretically should be kept out of the question, but which come to be the deciding influences in the action of the courts.

It is evident that we do not assume that in other cases than those especially protected human rights are to be sacrificed. On the contrary, we assume that they are protected in the ordinary process of social conduct, both within and without the courts. Nor do we or should we assume that the rights which are so protected are less precious than those which call for the unusual action provided by our state and federal constitutions. On the contrary, must we not assume that issues which arise under the application of these guaranties are those leading to the formulation of new objects and the rights which attach to them? It is largely under the doctrine of the police power, that such new objects and rights are emerging in our kingdom of ends, and here what is demanded is not an exact definition of abstract human liberties, of the right to the due process of law, but that these new interests which have been what we have been pleased to call private interests in the past, should have the opportunity to appear as common goods. It is evident that categories which are to serve all these purposes must be abstract and empty of content and that they should get their content through the struggle which arises on the bare floor and between their distant walls.

It is not for me to discuss the architecture, curious and at times fascinating in its archeological interest, of the staircases and corridors and doorways by which these modern throbbing issues reach

these halls, nor the strange garbs that they have to assume to be presented at court. It is important to recognize what is going on, and to distinguish between that part of the process which merely holds the issue back from making its plea, and that which allows it to become gradually formulated. And it is important that we should realize the relation between these two phases of the process. This can be recognized in the instances which are most in evidence in the courts, those having to do with the protection of rights involved in property. In the social legislation which is appearing in such volume in all our states, rights which have in the past inhered in property are seriously affected. Now it is not of importance that these earlier rights should be protected if some common good which they have failed to recognize is at stake, nor should there be obstacles placed in the way of the appearance of this common good involved, in the interest of the ancient right. What is of importance is that all the interests which are involved should come to expression. For this purpose it is of importance that no hasty action should take place. And from this standpoint it is clear that political guaranties which delay action in the legislatures and constitutional provisions which are enforced in the courts have the same function.

On the face of it the former method, that of political guaranties, is the more logical, for it is in the legislature that it is possible to present more fully the human interests that are involved. Especially in a legislature such as the English, in which the responsibility for the execution of the laws is and must be felt. And in England the political guaranties are practically the only ones in existence. But I can not discuss the relative value of these two types of guaranties, I can only insist that we should recognize that the drag which we put by means of both of them upon the changes in the structure in our society serves only the purpose of enabling all the interests that are involved in the issue at stake to come to the surface and be adequately estimated. Let us labor under no delusion; while we do not want hasty or ill-considered action, there is after all no right that must not eventually get its formulation in terms of a common good so universal that even those most opposed in the struggle will accept and acclaim it. And such a formulation must eventually take place in terms of concrete living interests.

In other words, we must recognize that the most concrete and most fully realized society is not that which is presented in institutions as such, but that which is found in the interplay of social habits and customs, in the readjustments of personal interests that have come into conflict and which take place outside of court, in the change of social attitude that is not dependent upon an act of legislature. In the society which is closest to that of the primitive

man we find the reality of all that is prefigured and set out in the institutions, and while problems that are not and can not be solved through the readjustments of the individual's habit and the immediate change in social attitudes have to be dealt with in the halls of legislature and the rooms of our high courts, they are only brought there to enable men to envisage them more clearly and especially to become conscious of interests which could not appear immediately in their reactions to each other. When, however, this has taken place and the essential meaning of the problem has been grasped, its solution lies in the action of common citizens with reference to the common goods which our institutions have brought to their view and so analyzed that they can react to these new interests as they have to those to which they are already adjusted.

In these days of discussion over the meaning of *Kultur*, we may entertain a false view of institutions. They are the tools and implements of the community; they are not civilization itself. Society has progressed by a process of integration which has gradually brought men and women who have been separated by physical and social distances so close together that they have come to react to those who have been afar off as to those with whom they have been in immediate sympathetic relation, and political institutions have held people together in these as yet not fully integrated groups and in part have helped them to get still closer together and in part have kept them still farther apart. The political institution has especially held men together because it has represented and in some sense undertaken to make good, what was lacking through the absence of immediate social interrelationship. Thus through military activity men of different groups and different localities have been brought into a relationship which could be but the shadow of a real human community. And yet the relation of those thus socially and geographically at a distance could be mediated by the direct connection to the monarch. Here was a common bond, though it did not run from man to man directly, but from each to the sovereign. It became, of course, a basis for direct relationship in war through the attitude toward the common leader. But it also served other purposes. It gave in the first place a sense of the larger social whole to which men belonged. In the second place, the subjection to the monarch carried with it the theory at least of his protection. Thus the relation to the king could serve to replace in some degree the complete socialization of the whole realm. The king was the guarantee for all the rights that were not respected because men belonged to so many different groups and classes and districts instead of to one self-conscious community. Not only military activity has thus brought men of different groups together and held them together by

means of a political institution till social integration could take place. Religion has served the same purpose. In Europe Pope and Emperor were together the institutional figures which in the Holy Roman Empire drew the shadowy outlines of Christendom and made it possible for men to realize that theoretically they belonged to a single society. But even more compelling than the influence of arms and religious faiths has been the influence of barter and trade and the wealth which they have procreated. Exchange of goods does not wait upon the decision of the clanging fight nor the acceptance of the prophet's message. It has undistanced the Alexanders and the Gregorys, and has set up a tenuous society of economic men from which no accessible member of the human race is excluded. Thus has money, that root of all evil, set the most grandiose problem to human kind of achieving the completed society which wealth-in-exchange has sketched. But if men that are otherwise hostile to each other will trade together there must be some guarantee that the human rights which neither is bound to respect in the other shall be regarded at least in so far as they continue to trade and barter. Let these same economic processes within a community force men from different classes together into relations which do not carry with them their own social organization and hence their own guarantee of mutual rights, and again some outside institution must arise to act as a surrogate for the control which a completely organized group would exercise directly. In a word, the political institution presupposes first, relations set up between those at an effective distance from each other, distance which may be measured in miles and days, or in unsurmounted barriers of social classes and castes; and second, that the social control over the conduct of men in this relationship, which would arise through the other social relations if these distances were overcome, must in the interest of the whole be exercised by some compelling social force within the radius of whose action the distant individuals fall; and third, that with the completion of the socialization of those who lie within this relationship the function of the institution, its guarantee of rights, ceases. Most of our quarrels are settled out of court, and except at the street corners within the loop district few of our actions are governed by the police, nor are human rights the less carefully guarded; they are indefinitely better protected than the most vigilant police administration or system of courts could guard them. Human rights are never in such danger as when their only defenders are political institutions and their officers.

If this is in any sense a true account of the situation, every right that comes up for protection by our courts or other constitutional institution is confessedly in a form which is incomplete and inade-

quate, because it represents a social situation which is incomplete and inadequate. Until that situation can change the right may demand such defense as an institution can give it. But to stereotype the incomplete social situation even in the interest of action which should be neither hasty nor inconsiderate is not the proper function of the institution. It is true that until the human interests involved can be brought to public consciousness action should halt. But is it wise to have one organ to halt action and quite others or perhaps none at all for bringing these issues to the surface when the actual right is being safeguarded?

Furthermore, whatever confidence we may have in the brakes and drags which we put upon the wheels of popular action, we should not forget that the ultimate guarantee must be found in the reaction of men and women to a human situation so fully presented that their whole natures respond. However lacking in rigidity and solidity this may seem, it is at bottom the only guarantee of a human right to which we can finally appeal. Our other appeals are to institutions which delay the action in this highest court, and are legitimate when they make possible the complete presentation of the case. But is it wise to put our faith entirely in the valiant delayer of action, rather than in the agencies which will lead to the final social readjustments through their adequate presentation of the issues involved? Is it not true that our confidence in our courts has worked in no small degree with other causes to weaken the responsibility of our legislatures on the one hand, and on the other, to lead many of us to face social problems by turning our backs upon them, and approach them only when we have exhausted every delay the constitution provides?

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ON HAVING FRIENDS: A STUDY OF SOCIAL VALUES

BY far the largest part of our social psychology consists of analyses, often genetic, of the idea-content of social consciousness. Upon social motives, values, and what may be called the sense of social reality comparatively little work has been done. Of the little that has been done, nearly all has reference to phenomena of instinct and impulse, as the actions of gregarious animals, of young children, or of crowds. Our more deliberate social acts and attitudes, in which we define to ourselves values that may be obscure or possibly lacking at more instinctive levels of conduct, have rarely been directly studied. Yet they offer an inviting field for research, a field that is

by no means preempted by psycho-biological investigations of group conduct. In what sorts of social object or of social activity does developed mind take satisfaction? What are its preferences when mutually exclusive satisfactions are in question? What is social objectivity of mind, and how do we become conscious of our social reals? We shall not know the solution of these problems until to our observation of animals, of children, and of crowds, we add parallel observation of civilized men and women in their controlled, consciously social reactions.

The purpose of this article is to open up a single experience of this sort so as to display the presence, and, to some extent, the nature of such problems. I choose for examination the familiar experience of *having a friend*—not friendship, which is an abstraction, nor yet the content of the idea “friend,” but having a friend, an experience in which a concrete social real is recognized as present, is socially valued, and is preferred to other goods. A case of the kind may be described as follows: My friend and I, chatting by an open fire, now and then fall into the silence, well recognized in the literature of affection, in which each friend “has” the other in an intimacy closer than conversation. Every one of us, I suppose, has often had this experience. Here, then, is society vividly real in the psychologist’s own experience; here is social value clearly realized without excitement and without distraction. The conditions for introspective analysis are favorable.

How, then, shall we describe the experience of friends who thus mutually have and enjoy each other? Reserving for a time the closer analysis that we call psychology, let us first of all examine the standpoint of the experience as it naively occurs. *Prima facie*, then, this is an experience of enjoying my friend himself, not merely the advantages that he brings to me. Friendship is sharply antithetical to barter. Even if the mutual conferring of advantages should be an awakener and promoter of mutual regard, nevertheless one comes at last to value the giver above the gift; and when friendship is ripe, one is ready to stand by one’s friend to the sacrifice of every advantage to oneself except the advantage of being and of having a friend. The valued object is my friend himself; or rather, it is each of us, since each takes the other’s standpoint as his own.

If we ask the naïve consciousness why a giver is valued above his gift, this, I take it, is the answer that we receive: The giver has experiences of his own, as the gift has not. The significance of friendship depends upon a second experiencing, so that I actually value another’s joy, I suffer another’s pain.

This, I think, is a fair statement of the point of view of every one of us when we “have” our friends in the greatest intimacy. Sub-

sequent analysis may show that the experience is not as simple as it seems; conceivably we shall find self-delusion to be of the essence of it. But in any case we have this datum: At times each of us seems to enjoy not only objects of experience, but also a second experiencing of them; or, to state the matter in a slightly different way, we enjoy not only objects as experienced, but also objects as *experiencing*.

As far as I can see, the psychology of values has no other datum quite as simple and luminous as valuing an object, or even seeming to value it, because it experiences. I surmise that the proposition, "I like this Christmas gift," is harder to construe than the proposition, "I love the giver"; that the value of a painting is far less obvious than the value of any person who enjoys looking at it; that, indeed, the most effective clue to our whole value-consciousness is the simple happiness of friends merely in having one another, or more broadly stated, any disinterested regard of one person for another.

What has psychology undertaken to do with this kind of fact? We shall find that attention has been given almost exclusively to two phases of it—it has been treated as a process having a determinable mechanism, and as a process of knowing, while the functional aspect has been relatively neglected. How shall we define the value that is here actualized? In what sense does disinterested regard for a friend constitute adjustment to environment? These questions are rarely asked even in our social psychology. In order that the situation may clearly appear, let us review the questions, bearing upon this experience, for which answers have been sought:

A. Psychology has analyzed certain elements and processes involved in social intercourse, such as suggestion and imitation, idealization, and tender emotion.

B. Considerable progress has been made toward a genetic account of social intercourse. We can accept as established that I do not first exist as a self-conscious individual and afterward form bonds with similar self-subsistent selves, but that some sort of social bond or continuity is primordial, and that the process whereby I arrive at self-regard is identical with the process whereby I become acquainted with my fellows.

C. Psychology asks, also, "How do I know that other minds exist?" Eight kinds of answer have been given: (1) I touch, see, and hear my fellow men. (2) I know other minds by analogy between the motions of my own body, which I know to be associated with consciousness, and the observed motions of other like bodies.¹ (3)

¹ F. H. Bradley, "Appearance and Reality." London, 1893, 255. The position of J. H. Leuba ("Religion and the Discovery of Truth," this JOURNAL, Vol. IX., pages 406-411) is expressed thus: "Human beings are objects of

My knowledge of a second nervous system somehow brings me closer to knowing that another mind exists.² (4) The bridge between my mind and my neighbor's is not physical, but spiritual. Through prior knowledge of God I have a social category which I can use in the interpretation of sense data.³ (5) My knowledge of the existence of other persons is a postulate of my life as a moral person (Fichte). (6) My knowledge of other minds is merely a particular instance of the universal method of the mind in outrunning the data of experience in the interest of subjective needs.⁴ (7) My knowledge of other minds is direct and intuitive. Minds are continuous with one another; bodies do not come between.⁵ (8) I know other minds by being in some degree or sense the very thing that I know. Individuals "may be included within other individuals."⁶

Some of these theories dislocate the question at the outset by assuming that the psychic individual is a sort of atomic thing-in-itself, whereas the nature of the individual is precisely what, among other things, the question seeks to determine. If we start with atomic minds, there is slight chance that we shall ever construe their knowledge of one another. Nor would the fact that such minds feel a need for one another improve our chances very much. For the need that each atom feels is its own need; an atom feeling for something is simply an atom turning a little faster on its own axis. Moreover, how does a sense of need for anything arise? We acquire an appetite for sweets by eating sweets, a desire for music by hearing music, a longing for friends by first having friends. My need, then, sense to me: I touch, see, hear, them. They behave exactly as I do and respond obviously to my presence. These beings meet every scientific test of my belief that they think and feel as I do." Here three different theories seem to be mixed together: (1) A naïve theory of perception. (2) A theory of analogy. (3) A theory of verification of a hypothesis by experiment. It would be interesting if Professor Leuba would indicate the nature of the scientific evidence that he himself thinks and feels, and then analyze the logic of the experiment that seems to him to prove that others think and feel as he does.

² H. R. Marshall, "Consciousness." New York, 1909, pages 173 ff. Karl Pearson suggests that if I could connect your brain and mine by a commissure of nerve substance, I should then have a direct sense-impression of your consciousness. "Grammar of Science," London, 1900, pages 48-50. But would I then know you as experiencing? If not, how does Pearson's suggestion help?

³ W. E. Hocking, "The Meaning of God," etc. New Haven, 1912, pages 297-300.

⁴ G. M. Stratton, "Psychology of the Religious Life," London, 1911, pages 364 ff.

⁵ J. E. Boodin, "Individual and Social Minds," this JOURNAL, Vol. X. (1913), pages 169-180.

⁶ J. Royce, "The World and the Individual," Vol. 2, New York, 1901, page 238. See also pages 168-174. Boodin (*op. cit.*, pages 174 ff.) also holds that minds overlap.

is not the ground of my knowledge that objects of a certain class exist, but a consequence of knowing some objects of this class.

As to the other types of theory concerning our knowledge of other minds, the suggestion is in order that appeal to such concepts as substance and universal mind may well be postponed until the datum itself has been thoroughly examined. Now, the experience out of which the question arises is an experience of friends and enemies. You and I exist for each other not otherwise than in the experience of actualized value such as the term mutual regard connotes. Friendship or the contrary includes the *discovery of an alter*, not merely exegesis of an object originally known simply as existing. The datum for our inquiry is not analyzed, but twisted, when we attempt to think the real existence of others apart from the conditions of social realization. To ask how I know that you exist, the term existence being emptied of such connotations, is like asking me to smile broadly and at the same time whistle. The question, in this form, is simply an intellectual teasing game.⁷ And this remark applies equally to my knowledge of my own existence. I do not observe myself as simply there, like a museum specimen in a glass jar. *Disinterested* introspection is powerless to construe the sense of "mine"; this term has meaning at all only from an interested standpoint, namely, the actualized value connoted by the term self-regard. I find myself by being a friend to myself.

In order to give objective meaning to the inquiry into our knowledge of other minds, we must proceed from a functional point of view. Our questions then become somewhat like these: How shall we objectively define the value that is the backbone of acquaintance with others? In what parts of our total experience are such values actualized? Considering friendship as a case of successful adjustment, *to what* is one herein adjusted? How is this social value related to other values?

D. To one of these questions, What is it that I value when I have a friend? psychology gives an answer that tends to justify the traditional analysis of friendship. The notion that regard for others is only refined or subtle self-regard has been exploded.⁸ The springs of conduct are released with equal directness by one's own needs and by the needs of others. Parental care is only the most conspic-

⁷ Some of the writers to whom I have referred see that affectionate regard is inherently involved in the realization of a *socius*. See Royce, *op. cit.*, Vol. I., pages 457-459.

⁸ Nowhere, perhaps, is this more evident than in the enlarged sense that many psychologists give to the self in such terms as "social self." This identification of self-interest with social interest means that regard for others is as deep in us as regard for our particular self.

uous instance; the fact is found at all levels of life from maternal instinct to a Lake Mohonk Conference.

E. It would be interesting, if the limitations of this discussion were not so narrow, to inquire what has been done toward determining in what parts of our total experience social values of the primary type are actualized. But this point must go untouched in order that we may consider briefly *to what* we become adjusted in a well-developed social experience. The naïve answer, as we have seen, is that in friendship I am adjusted to my friend himself as experiencing. Friendship may involve adjustment to something else through my friend, but the primary fact appears to be adjustment *to* him, not merely *through* him. *Prima facie*, then, the most clearly social experience consists not merely in having certain mental contents, but in a multiple having of them.

What, now, have psychologists done with this apparently multiple experiencing? Thus far they have done little. Psychology commonly analyzes mental processes "as such," regardless of the fact that some are Smith's mental processes, and some are Jones's. Though for certain purposes this suffices, it results in odd abstractness. It sometimes makes our social psychology as remote from our social experience as the Absolute Mind of the idealists is from my appetite for dinner. When, for example, we conceive everything psychical as experience-in-general, conversation between Smith and Jones is construed wholly as internal conversation, after the fashion of my debates with myself when I am endeavoring to make up my mind. Smith now becomes thought-of-Smith, and Jones becomes thought-of-Jones. On this basis the genetic problem of *ego* and *alter* becomes simple—we have merely to trace the building up of the Jones-thought in connection with the Smith-thought, and of course the problem is unchanged if the psychologist himself happens to bear the name of Jones. Now, this merely content-wise description of social consciousness leaves out social value as it is experienced by Jones and Smith. To them the central interest of the whole situation is interest in each other *as experiencing and as having attitudes*.

Psychologists do not really succeed in extruding altogether the notion of multiple experiencing, however. For the object that psychology examines is never merely thought-of-mental-process, but mental process itself objectively there and not identified with the psychologist's own mental process of the moment. Indeed, we need only analyze the experience of psychologizing to see that the notion of an experience-in-general can never be a finality. When I, Jones, start to psychologize, I first of all attempt an act of self-diremption; I lay aside my friend Smith as a social real and substitute for him a Smith-idea in which I now, as psychologist, take only the same kind

of interest that I take in a guinea-pig-idea, or a potato-idea. Yet, even as psychologist I finally bring the results of my research to some Smith or other for his judgment. Psychology itself exists only as a social possession; it is a multiple experiencing. When I read psychological publications I always assume a second experiencing to which my present experience attributes value. I take the same attitude toward the individuals upon whom I make experiments. And if, from all these minds, I construct the notion of mind-as-such, or experience-in-general, the result is a curious one—my attention merely passes back and forth between the standpoint of myself as this particular psychologist and the standpoint of an ideal psychologist.

The conclusion is: (1) That the experience of having a friend involves valuing an object as experiencing. (2) That such valuing includes, and is the source of, our certainty of other minds. (3) That when psychology seems to translate our naïve social consciousness into experience without experiencers, it really does nothing of the sort, but at most substitutes for one set of experiencers another set of them, namely, psychologists, actual and ideal, together with *Versuchspersonen*. (4) That functional psychology errs when it treats consciousness as merely an instrument of adjustment; we adjust ourselves *to* it, not merely *through* it.

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REVIEWS AND ABSTRACTS OF LITERATURE

The Problem of Individuality. HANS DRIESCH. London: Macmillan and Company. 1914. Pp. ix + 84.

The problem of individuality can hardly be said to be materially advanced toward solution by the little book for which it furnishes the title; that is, for readers who are acquainted with the author's Gifford Lectures of a few years ago. Half its space is, indeed, devoted to the defense of the neo-vitalist thesis that the secret of the organic individual is to be found in some immaterial, teleologically active, inherent agent,—“entelechy” or “psychoid”—but no new arguments are introduced, nor is there even any consideration of the criticisms of the theory which have appeared since the publication of “The Science and Philosophy of the Organism.”

As before, the need of a kind of soul in the organism is maintained on three grounds: (1) The nature of what the author calls a “harmonious equipotential system”—in the blastula, for example—in which each element is equally able to play any single part in the formation of one totality (p. 14). “*Jedes jedes kann.*” That is, if the blastula is mutilated,

no matter in what part, the remaining cells are capable of producing a complete individual; which shows that the several cells are not fully specialized in potency and function, but in harmony with their fellows are capable of discharging functions which ordinarily they would not have assumed. Now, these changes, in strong contrast with the mechanico-determinist order of things, appear to be due, not at all to changes in external conditions, nor to any corresponding or adequate change of internal conditions, but to the changed relations of the parts to the whole and the end. It is concluded that the rigid specialization which characterizes a machine does not exist in the blastula. (2) The nature of a complex-equipotential system, such as the egg, which develops by thousandfold fission from a single cell (its *Anlage*). Now, if the egg is really merely a very complex machine, and the development of the individual from it is due solely to its disintegration, which is conceivable, how are we to account for the presence of the organic machine in the egg? It would seem that it could come only from the *Anlage*. This, however, is not conceivable, says Driesch, for a machine can not be cut in two a thousand times and still remain a machine. (3) The nature of individual action, which as a response to stimulus is characterized as a "correspondence among totalities"; that is, not a one-to-one correspondence of a given item of action with each equivalent item of stimulus, as in the notes of a piano under the player's touch, and as is required for a completely mechanical process, but one where the stimulus is received *as a whole* (in a sense unified) and responded to by a unified act which takes its type from the organizing activity of a "basis of reaction" (the brain) which "has been made from without"—through contingent conditions in experience. If personal activity were purely mechanical, its items of conduct should be very miscellaneous, and severally unorganized and characterless, seeing that their sources, both in the stimuli of the present environment and in the cortical registrations of past heterogeneous experiences, are so decidedly miscellaneous. But such is not the case; each act has a purposive, conative unity of its own, imposed upon it, we must believe, by some agency in the organism (the "psychoïd") which has already imposed an apperceptive and appreciative unity upon the stimulus. "The acting man . . . is not a stage actor [still less a phonograph]. *He is the sovereign of the results of his personal history*; his history affords him only *means* of future acting, and nothing more" (p. 30).

It doubtless behooves a layman to speak with caution of the pleas of so noted an authority in biology; but, as regards the first argument, it is proper to point out that some embryologists, C. N. Child and J. W. Jenkinson, for example, challenge Driesch's sweeping conclusion that systems such as the blastula are absolutely equipotential. The subdivision, they affirm, "can not continue indefinitely, . . . there is always, sooner or later, a restriction of potentialities, and this is due to the manner of distribution *ab origine* of the constituent parts of the whole."¹ "The correct proportionality of the organs of partial larvæ, then, offers no peculiar difficulty;" for the "causal harmony," which for Driesch is the

¹ Jenkinson: "Experimental Embryology," page 291.

significant thing in equipotentiality, may well "be given in the initial structure of the egg, and, if that may be divided, then the 'causal harmony' may be divided, too."²

As to the logic of the second argument, even a layman is able to see that Driesch makes no distinction between a single mechanism and a mechanical situation, or aggregate, though he is, of course, quite familiar with the difference between a *morphological* preformation in the egg and a physico-chemical one. It is truly enough inconceivable that a *single* machine—say, a watch—should continue to be a machine after its division and repeated subdivision. Such a machine is an individual, and *qua* individual is indivisible. Dividing it destroys it. A mechanical situation, however, a physico-chemical aggregate, for example, is, or may be, a group or congeries of mechanisms, and one finds no difficulty in thinking of such a congeries as capable of division without loss of character,—that is, the mechanical structure of its parts. A double seidnitz-powder combined in the dry state may certainly be divided an indefinite number of times without in the least destroying the power of the parts to react in its characteristic mechanical way under the stimulus of water. Whether an egg is a single machine or a mechanical aggregate is a question of fact for the cytologist to determine.

The third argument seems much the weightiest, and to many will doubtless be conclusive; yet there are physiologists who do not despair of reducing even conduct to purely mechanical terms. Accepting this argument as valid, however, on its negative side, that is, as disproving any purely mechanical account as an adequate explanation of intelligent behavior, it still does not appear why we are obliged to posit Driesch's immaterial "psychoïd." It is no new thing to find the concept of mechanism less extensive than existence. It is some time since Mach pointed out that mechanism is neither the whole of reality, nor any part of it, but an aspect of it, albeit a very important aspect. Applying this principle to any given material system, it evidently follows that proof that there is something more than mechanism in the system is no proof at all that that something more is immaterial. It may well be matter in another aspect. The implied disjunctive assumption that what is not mechanical is immaterial appears to be unwarranted. Indeed, our author's use of disjunctive reasoning is the side of his work with which the critical reader is likely to feel most discontent.

The third lecture is devoted to "The Logic of Vitalism," which, we are told, is a part of his "general theory of becoming." It is chiefly occupied with topics on the metaphysical side of the logical field, among which are identity and change (becoming), "Nature," wholeness, teleology, and causality. The last named category is divided into (1) *singular causality* which, with its one-to-one correspondence, is essentially mechanical and the logical outcome of which is the principle that "The degree of manifoldness of a natural system can not increase from itself," and (2) *unifying causality*, which he postulates to account for the numberless increases of manifoldness, not due to external influences, actually found

² *Id.*, page 292.

in the organic world. Under unifying causality, in order to account for the "progressive complication" in the phylogeny, he finds a place for Aristotle's generic individual, and even discovers in history signs of a "suprapersonal unity" in human society.

The last of the four lectures is a metaphysical inquiry rather than a plea. It is concerned with the possibility of a "monism of order"—"the doctrine that the universe is one ordered whole." This idea, he concludes, is in conflict with the facts so long as the "whole" is regarded in Spinozian fashion as spatial throughout, "every characteristic of the Absolute" having "a spatial symbol." It is quite possible, however, our author thinks, "that the world of experience proper *can* only give us a fragmental knowledge of absolute Reality," since there may be therein "innumerable qualities which are not spatially symbolized and are therefore unknowable." "Therefore, from our piecemeal experience we can never say whether there be not a monism of order in the Absolute."

Driesch himself is unable to accept such a faith monism, though he regards the denial thereof as involving renunciation of the "fulfilment of logical postulates" and total inability to solve the problem of evil. These conclusions illustrate afresh our author's tendency to argue from disjunctives which are not true exclusives. It is assumed that the metaphysician is shut up to a choice between monism and agnosticism. Pluralism is not even noticed. Notwithstanding, however, his confessed lack of metaphysical belief Professor Driesch regards his neo-vitalism as logically legitimizing a faith monism in those to whom it is possible. He says, "Our vitalism . . . violates the Spinozian dogma, also, for it looks upon Nature as something which can not be comprehended under spatial symbolism" (p. 77). "It is no longer necessary to look upon spatial data as a strange image of the Absolute in its completeness and then to be disappointed with this strange image. There is *not* a complete 'image' of the Absolute in space" (p. 78).

WM. FORBES COOLEY.

VASSAR COLLEGE.

The Ego and Its Place in the World. CHARLES GRAY SHAW. New York: The Macmillan Company. 1913. Pp. 523.

This book, the author's "retort to the world," analyzes that world into appearance, activity, and reality, and then construes the phenomenal world in the light of esthetics as the place of joy, the causal world by means of ethics as the place of work, and the substantial world after the manner of religion as the place of truth.

The analysis involves a discussion of the problem of traditional metaphysics, enriched by the contents of art and science, ethics and religion; and the purpose of it all is to obtain a higher synthesis of material already obtained by investigation and analysis. Reality is found "to consist of something graded, so that there is reality in appearance, still more reality in activity, while its full nature is found in the substantial."

Though this "dialectic," as the author likes to call his book, has grown out of university lectures, one must not imagine that it is to be read

rapidly or understood easily. There is much wealth of historical illustration, allusion, and metaphor; but if the reader is not at his best—and it is hard to be at one's best through five hundred closely written pages—the very profusion of illumination is sometimes confusing and disconcerting.

The following extracts give some idea of the author's way of putting things.

“Where the activistic element in egoism is wanting, the result is weakness and resultlessness; self-knowledge leads but to self-hatred. This half-egoism, with its Hamlet-like introspection, was dreaded by Turgénieff, who so longed for the activistic that he constantly exalted the character of Don Quixote as the man of action. Where Litvinoff in “Smoke” is the type of purely contemplative egoist, Bazaroff in “On the Eve” stands for the quixotic activist. The frank admission of activism as a phase of inner and outer existence does not put us in a position where we must acknowledge such a doubtful proposition as the superiority of the will over the intellect. In such a situation the will would defeat the very purpose for which it strives, and end in a kind of Beylism, as its author, Stendhal, called it, wherein the self acts in blindness. The anti-activism and anti-egoism of Geulinx tends to arouse such a revolt, and the ego which is conscious of its volitional powers is not ready to relinquish reality upon such unconvincing grounds. It was in this way that Nietzsche, who sought the superman in the pages of Stendhal, did not fail to strike back at Geulinx with his *despectio sui*” (p. 311).

“The positive will to be makes more vivid an impression upon the mind when it is contrasted with its rival, the will not to be. How blind has been philosophy not to have observed that the antique contrast between being and not-being has a modern significance almost terrible to contemplate. From Hobbes to Nietzsche, from Geulinx to Wagner, this contrast, this burning antinomy, has been contemplated as a fascination. Where the Dionysiac in man urges him to exist in all the fullness of his earth-life, the calmer Apollonian mood counsels the passivity of contemplation; where Siegfried affirms his being as that which belongs to him, Tristan denies his individual right to continue his existence and surrenders a *göttlich ewiges Ur-Vergessen*. Whatever be one's ultimate view of life, he can not deny the fact that spiritual negation is possible for man, whose existence is so slenderly connected with and meagerly interpreted by nature that the physical fact of self-existence is not necessary ground for self-assertion, which must come from within. This work of self-affirmation thus becomes doubly necessary in the life of man, who must resist the absorbing influences of both the natural and the spiritual. With the final view of the world before us, as will be found in the following book, this problem of self-despection will assume a somewhat different character” (pp. 326-7).

H. AUSTIN AIKINS.

Self-Realization: An Outline of Ethics. HENRY W. WRIGHT. New York: Henry Holt and Company. 1913. Pp. xiv + 429.

As a book which is well written and well constructed, showing a fairly well proportioned mingling of theory and practise, of abstractions and illustrative material, this book by Professor Wright is bound to meet with considerable favor among teachers of ethics. Moreover, if a text-book may ever, having a thesis, wisely embody this in its title and if, to press hypothesis still farther, that thesis may nowadays ever wisely imply, in the spirit of absolutism, that there really is a particular *summum bonum*, then as to both suppositions Professor Wright must be said to have done exceedingly well, giving a minimum offense to such as might doubt the wisdom either of his method or of his standpoint. Certainly his book makes a good course in ethics, one's only doubt being that it may be too individualistic to be used successfully by other teachers in any other way than that of a reference book, and his glorification of self-realization, as he finally interprets the term, is as near to being free from the taint of absolutism as the glorification of any single thing can be. Thus, if I may so express my impression of the book, it is on the whole traditional, if not almost old-fashioned, in its spirit, in its idealism, but timely, even up-to-date, in its information and material. Its rationalistic method, its absolutistic point of view, its teleological bias, are all so rarefied as to make one wonder if the old-timers—no disrespect intended—might not at times have some difficulty of breathing and as also to give present-day empiricists, pragmatists, and their kind at least some slight hope of another convert.

All the proper subjects are discussed, and discussed, too, clearly and commonly to some purpose. Indeed, has anything been left out from cynicism to Kant or even Dewey and Tufts; from desire, the end in itself and conscience to individual and social virtues and even religious virtues? In especial, too, the chapter on "The Individual Virtues" in the fourth part (Part I., Ethics as the Science of Good Conduct; Part II., The Nature of the Good; Part III., The Good as Self-realization; and Part IV., The Life of Self-realization) is interesting in its treatment of temperance, prudence, courage, and idealism and in the discussions of health, property, reputation, physical, economic, and moral courage, culture and achievement, made incident to that treatment. But am I wrong in believing that modern ethics needs all that doubtless, but also something more? Morality, for example, as never before, has its humor, its compromises, its adventures, in a summary word its very living humanity. Professor Wright succeeds in making it fairly living and human, especially as his book draws towards its end, but not living and human enough, as I am disposed to feel after my first examination of his work, to meet the day's—and the night's?—needs. A good book—I mean now intellectually good—is not necessarily a vigorously living book and, while to say just this will probably carry sharper criticism than is meant, of Professor Wright's "Self-Realization," it does nevertheless suggest the point at which, at least in my opinion, commendation has to lag. I may, however, be expecting of a text-book what would not be becoming to a text-

book. A text-book may need rather to forget than to remember what Pliny, the elder, alien to the humor and adventure of life, even of the moral life, said to Francis Bacon: "*Solum ut inter ista certum sit nihil esse certi.*"

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JOURNALS AND NEW BOOKS

REVUE PHILOSOPHIQUE. August, 1914. *La conscience épiphénomène* (pp. 113-143): FÉLIX LE DANTEC.—There enter into us "material documents" which resemble external events, the presence of these documents being accompanied by knowledge of these external events: from this the writer establishes that "there are cases in which a material construction *knows* certain particularities of its own structure." Consciousness is defined as the subjective property possessed by a given body at a given moment "of being aware of its actual structure, or at least of a part of its structure." The author rejects the hypothesis that the vital phenomenon has the property of giving birth to consciousness in the material agglomeration made of materials stripped of consciousness, and accepts the view that the elements of consciousness exist in inorganic nature. *La logique affective et la psycho-analyse* (pp. 144-161): TH. RIBOT.—The logic of sentiment is "a synthesis of representations, evoked and grouped by an actual affective disposition, and associated by the influence of the emotional coefficient which accompanies" each sentiment. *La pensée russe présente-t-elle des tendances originales en philosophie?* (pp. 162-191): N. SELIBER.—The first part of a study of the distinctly Russian elements in "Russian" thought. *Observations et documents. Quelques expériences sur la localisation spatiale*: B. BOURDON. *Analyses et comptes rendus*. A Fouillée, *Esquisse d'une interprétation du monde*: D. PARODI. Clodius Piat, *Quelques conférences sur l'âme humaine*: L. DUGAS. A. Dauzat, *Le sentiment de la nature et son expression artistique*: A. JOUSSAIN. Romualdo Bizarri, *Studi sull'estetica*: A. JOUSSAIN. *Notices bibliographiques. Revue des périodiques étrangers.*

Davids, Mrs. C. A. F. Rhys. *Buddhist Psychology: An Inquiry into the Analysis and Theory of Mind in Pali Literature*. London: G. Bell and Sons. 1914. Pp. xii + 212. \$1.00.

Jchak, Frida. *Das Perpetuum Mobile*. Leipzig und Berlin: Verlag von B. G. Teubner. 1914. Pp. 103. 1.25 M.

Levenstein, Adolf. *Friedrich Nietzsche im Urtein der Arbeiterklasse*. Leipzig: Verlag von Felix Meiner. 1914. Pp. vi + 120. 2 M.

Riley, I. Woodbridge. *American Thought: From Puritanism to Pragmatism*. New York: Henry Holt and Company. 1915. Pp. viii + 373.

Schumann, F. *Bericht über den VI Kongress für experimentelle Psychologie in Göttingen*. Leipzig: Verlag von J. A. Barth. 1914. Pp. iv + 351. 11 M.

NOTES AND NEWS

It is announced that the programme of Summer Courses at the Johns Hopkins University will this year include graduate courses in a number of departments. These advanced courses will be offered in partial fulfilment of the requirements for the degree of Master of Arts. Under the rule of the Board of University Studies, the residence requirement for this degree is at least two years. The arrangement for summer graduate courses provides that one of these two years may be satisfied by attendance and study during not less than three sessions of the Summer Courses. The session in 1915 will open July 5 and continue six weeks. The programme will be sent on application.

THE New York Branch of the American Psychological Association met in conjunction with the Section of Anthropology and Psychology of the New York Academy of Sciences on February 22. The following papers were read: "The Effects of Air Conditions upon Accuracy of Judgment of Intellectual Products," Mr. William A. McCall; "Experimental Studies in Recall and Recognition," Miss Edith F. Mulhall; "Practise and Transfer Effects in Cancellation Tests," Mr. Melvin A. Martin; "Effect upon Retention of Conditions Favoring Quickness of Learning," Professor R. S. Woodworth; "The Energy Error in Interference Tests," Mr. J. J. B. Morgan.

PROFESSOR MAURICE DE WULF, professor of philosophy at Louvain, and member of the Belgian Academy, has accepted the invitation of Harvard University to lecture on philosophy during the first half of the academic year, 1915-16, and will begin his work in September, 1915. The subject of his course will be "History of Medieval Philosophy, and Aristotle's Metaphysics." Professor De Wulf is the well-known editor of the *Revue Neo-Scholastique*. Two of his works have been translated into English—"The History of Medieval Philosophy" and "Scholasticism."

THE University of Oregon has just completed a new psychological laboratory for both practise and research work. It consists of a suite of nine rooms, in addition to the lecture room, all of which are equipped with power circuits, gas, compressed air, and an intercommunicating system of wires and speaking tubes.

A NEW bi-monthly magazine, *Revista de Filosofia*, has just been launched in Buenos Aires, under the editorship of José Ingenieros. It will aim "to study the vital questions of civilization and the general ideas which lie outside the province of any particular science, and to impart unity of direction to Argentine thought."

THE Macmillan Company is about to publish a new book by Professor Harald Höffding, entitled, "Modern Philosophers, Lectures delivered at the University of Copenhagen during the Autumn of 1902; and Lectures on Bergson, delivered in 1913." The volume has been translated into English by Mr. Alfred C. Mason.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

THE SOCIAL ORIGIN OF ABSOLUTE IDEALISM¹

“THE practical reconstruction of moral ideals in England,” says T. H. Green,² writing of the change from the eighteenth to the nineteenth century, “was to come, not directly from a sounder philosophy, but from the deeper views of life which the contemplative poets originated, from the revival of evangelical religion, and from the conception of freedom and right, which Rousseau himself popularized, and which even in his hands had a constructive as well as an anarchical import. These three influences, however superficially unlike, have yet this in common, that they tend to rid the consciousness of its self-imposed individual limitations.” In this estimate of practically reconstructive influences, Green gives us indirectly the motive of his own philosophy and of English idealism generally; it was to furnish that “sounder philosophy” of which these practical influences were unconscious expressions. Like all English philosophy, then, idealism developed in close relations with practical problems and was, in particular, largely an interpretation of English social and political experience. The purpose of the present paper is to discuss the relation of idealism to the third of Green’s reconstructive forces, the new “conception of freedom and right,” and to show what the nature of this social and political experience was. It aims, in addition, to estimate the adequacy of absolute idealism to the interpretation which it attempted.

The first half of the nineteenth century was marked by the climax and triumph in England of the ideal of *laissez-faire*, using this term to indicate not only the economics of the utilitarians, but also their political theories and those of the older natural rights school. The principle of both was what is called individualism, though the better name would be negative freedom, meaning thereby the principle that political freedom lies in restricting the control of the state

¹ Read before a joint meeting of the American and Western Philosophical Associations, Chicago, December 30, 1914.

² “Popular Philosophy in its Relation to Life,” “Works,” Vol. III., page 117.

over the individual to the farthest point consistent with the maintenance of peace and order. There is, according to this principle, an antithesis between social control and liberty, and the one can be increased, therefore, only by the limitation of the other. In economics this view produced the ideal of unrestricted competition; in politics it meant the limitation of the functions of the state to police duties; in ethics it meant that the sole rational motive to action was the agent's private good. In all cases to be free meant to have an impenetrable sphere of interests which can not be invaded; social control is justified only by the need for preventing such invasions. For a social philosophy dominated by the principle of negative freedom, the individual is the possessor of such a circle of private interests and society is an aggregation of such individuals living in spatial and temporal contiguity.

Such an ideal, of course, was never realized in anything like its entirety anywhere, but the political revolutions, and more especially the industrial revolution in England, produced something like an approximation to it. Even the partial success of the ideal, however, at once showed its impossibility; it became clear to the majority of thoughtful and reforming Englishmen that the project of leaving each man to raise himself by the exercise of free contract to the level of civilized existence was futile. By the middle of the century the revolt against *laissez-faire* was in full swing. It was marked in popular literature by such novels as Mrs. Gaskell's "Mary Barton" (1848), Kingsley's "Alton Locke" (1850), and Dickens's "Hard Times" (1854). In literature outside of fiction Carlyle had long been thundering against mechanism and the Godless age, and Ruskin was pleading for beauty in common life and craftsmanship in production. The Christian socialism of Kingsley was an effort within the English Church to meet the situation, and even among those trained in the thinking of the older radicalism the opposition to *laissez-faire* could be discerned. Thus Harriet Martineau, identified as she was with the Manchester School, wrote in 1849, "A social idea or system which compels such a state of things as this [the condition of the wage earners] must be, in so far, worn out. In ours, it is clear that some renovation is wanted, and must be found."³ John Stuart Mill, the finest intellectual product of the whole utilitarian movement, is perhaps the best illustration of the decadence of *laissez-faire*. He himself was scarcely conscious how profound were the changes which he introduced into the philosophy of Bentham and James Mill, and he can not be said ever to have reached constructive clearness in

³ "Thirty Years' Peace," IV., page 454. Quoted by W. Lyon Blease, "A Short History of English Liberalism," page 237.

these changes, but they are proof positive that the day of the old utilitarianism was gone.

Nor was the revolt against *laissez-faire* confined to literature. Especially after the further extension of the suffrage in 1868, it worked itself out in political action and embodied itself in liberal legislation. It appears in such laws as Gladstone's attempt to deal with the Irish land question (1870), compulsory education and the reform of the lower schools (1870), the Trades Union Act (1871), and the Employers' Liability Act (1880), all of which restricted in one direction or another the negative freedom of the individual. The essential thing which may be discerned in all this liberal legislation is the birth of a new and more positive conception of freedom. It was perceived that the "freedom" of a bankrupt tenant to contract with a wealthy landowner, or the "freedom" of the dweller in the slums of a manufacturing town to educate his children as he chooses, however unrestricted at law, is in practise a travesty upon any humane sense of the term. A man is free, as these later radicals discovered, not when he can do as he chooses, but when he can both choose and do something humanly worth doing. And in order to secure a freedom in this positive sense, it may often be necessary for society to exert its organized power in such a way as to limit the individual's negative freedom. Thus there gradually took form that newer ideal of liberty as an equality of opportunity to possess and enjoy the benefits of a civilized standard of life which has recently been expressed most ably by L. T. Hobhouse in his little volume on "Liberalism." As early as 1880, however, a similar principle was stated by T. H. Green in his address on "Liberal Legislation and Freedom of Contract": "When we measure the progress of a society by its growth in freedom, we measure it by the increasing development and exercise on the whole of those powers of contributing to the social good with which we believe the members of society to be endowed; in short, by the greater power on the part of its citizens as a body to make the most and best of themselves. . . . The mere removal of compulsion, the mere enabling a man to do as he likes, is in itself no contribution to real freedom." "It is the business of the state . . . to maintain the conditions without which a free exercise of the human faculties is impossible."⁴

There can be no doubt whatever that the self-realization ethics of the English idealists was intended to theorize this new drift in English political and social life. The name, indeed, is not altogether a happy one, for as a theory of individual perfection idealist ethics has remained too vague to be of much consequence. Its highest value has lain in a constructive criticism of hedonist indi-

⁴"Works," Vol. III., pages 371, 374.

vidualism. Hence the paradox that, more than any other contemporary school, the self-realizationists have insisted upon self-sacrifice and self-renunciation. The idealist has shown with great effectiveness that the supposed antithesis between individual freedom and social control, between public and private interests, between egoism and altruism, depends largely upon the application to ethical problems of a spatial figure of speech. The interests of men are taken to be impenetrable and mutually exclusive, just as two bodies can not occupy the same position at the same time. Such an analogy lies at the bottom of the almost exclusive absorption of the hedonist in pleasure, which he regards as the sole motive of action. Every act can, of course, be looked at from the point of view of the agent's interest and the interest is, if you choose, a state of himself, but this does not imply that the agent is interested only in states of himself. The point is sufficiently covered by Green when he shows, following Bishop Butler, that action is motived by desire and desire is directed toward objects. It is a mere confusion to suppose that because satisfaction is pleasurable, pleasure is the only thing that gives satisfaction. The fact is of course clear that what I call *my* interests are made up mostly of objective institutions and causes, such as my family, my profession, my party, or my nation; my success lies mostly in the success of these institutions, and what my good is apart from these things it would puzzle anybody but the ideal voluptuary to tell.

Before criticism such as this the exclusive private interests of the older individualism disappear. There are no merely self-regarding virtues and vices because no act concerns and affects merely myself; there is no strictly private good because all good depends on objects in which other persons are interested. Social good is not apportioned among individuals in such a way that more for one means less for another. Such physical metaphors are out of place and this the idealist traces to the fact that social relations are the product of consciousness; they are relations between conscious persons and are, therefore, different in kind from spatial and causal relations between non-conscious beings. The rendering possible of such relations is one of the peculiar functions of consciousness; consciousness is the special organ of society. To show this may be said to have been the purpose of all Green's philosophy, both ethical and political. Thus, as he holds, society depends upon the consciousness of a common good shared by all members of the society. Both rights and obligations arise from such a consciousness. For rights are justified only by the fact that the subject of the right contributes by its exercise to such a common good. His claim upon the right arises from the recognition both by himself and others that his possession of the right will

be thus contributory and the claim implies an equal recognition of others as having the same right and the same power of contributing to the common good. Society depends, therefore, as Kant had said, upon the treatment of conscious beings as ends and not as means merely. Society is possible only where men regard each other as like-minded and as equals,⁵ though equality is quite consistent with difference of social function and social position; what is essential is the recognition of each as voluntarily a contributor to the common good. On the other hand, obligation arises from the perception that the good of the group really is a common good to which it is reasonable that the individual should contribute. Hence, as Green shows at length, political institutions depend primarily upon will and not upon power, for such institutions, even when they are despotic in their action, have power in the long run only because they command the loyalty of persons who identify their good with the maintenance of the institution.⁶

The position thus taken by the idealist, that consciousness is the organ of social relations, has its reciprocal, which he also recognized and which has gained common acceptance. This reciprocal is the thesis that the existence of social relations is the condition for the development of consciousness. The idealist developed this less from a psychological than from an ethical point of view, but his argument is sufficiently clear. As Green says, the individual becomes a person and has a life of his own only by a consciousness of his own ends and by the freedom of action necessary to pursue them. Such freedom implies the recognition by others that the individual is a possessor of rights, that he can, by his action, contribute to the common good, and that the whole community is, therefore, bettered by his freedom. If such recognition were wholly absent, not only the right would disappear, but in the long run the consciousness of ends to be sought would also fail to develop. A person can not permanently regard himself as the possessor of rights and obligations unless the persons with whom he is socially related also regard him in this way. And the heightening of a sense of individuality is possible only with an increased sense of the social significance of such individuality. Personal consciousness and social relationships are, therefore, mutually sustaining; individuality and social organization progress *pari passu*.

On its factual side, then, idealism was a discovery of the special nature of mental phenomena and of their interrelation with social phenomena, and also a demand for the recognition of categories applicable to this special nature. Unfortunately, however, its inter-

⁵ "Principles of Political Obligation," "Works," Vol. II., page 450.

⁶ *Ibid.*, Section G.

pretation of these categories was cast in the mold of absolutism. Drawing its philosophical inspiration as it did from Kant and the German idealists, it fell heir to certain presuppositions, chiefly logical, which were foreign at once to English philosophy and to the English social experience which idealism sought to interpret. Hence its criticism of the traditional English empiricism, otherwise its greatest service to philosophy, became constructively the explication of an absolute consciousness to supplement the bundle of sensations into which Hume had resolved the mind, and of an absolute ideal toward which individual and social development shall direct itself. The classical example of this is Green's eternal consciousness which "supervenes upon an animal organism." The "animal organism" is sketched in the main from empiricism; the eternal consciousness is the form of perfect self-realization. It is quite true, of course, that Green and all other idealists have persistently disavowed an intention merely to supplement phenomena with an absolute, and no doubt the total effect of idealism has been more than this, but the fact remains that the theory of the absolute has never become, and can not become, a fruitful instrument for the interpretation of phenomena. Green, in fact, admits that from the form of self-realization, from the eternal consciousness as such, no deduction regarding the concrete fulfilment of the self can be drawn. What actually constitutes such fulfilment has to be inferred from the partial realization of the self to date in the historical process. But this historical process occupies a curious twilight zone in Green's philosophy, for the animal organism as such has no history because it lacks the time-spanning consciousness which alone makes a series of events continuous, and the eternal consciousness has no history because it is not in time. The consequence of this is that Green's philosophy can not logically supply a principle adequate to the criticism of the historical series. The form of self-realization remains without content and, however repugnant it may be to Green's liberalism, the individual, having got whatever content he may have from the progress of the social system, becomes simply an organ of the social organism. Society tends to become absolute; it is the only concrete manifestation of the absolute that the idealist can point to.

This bias of idealism is strengthened by a certain phase of social experience that came more clearly to light with the decline of individualism, viz., the fact that institutions do possess a vitality of their own which determines the manner of their development, sometimes dead against the will of the most enlightened citizens. Even the wisest reformer usually accomplishes something considerably different from what he consciously intends. The equal implication of society in the individual and of the individual in society, which was the ideal

of the self-realization ethics, is almost as hard to maintain in theory as it is to realize in practise. Thus it is quite possible for absolute idealism to become an exponent of a conservative reaction against the *laissez-faire* radicalism. Hegel is the common illustration of this tendency, while among English idealists Mr. Bradley gave the clearest expression to it in the statement of self-realization in his "Ethical Studies" (1876). Here we find the conclusion which Green, because of a temperamental liberalism, steadily refused to draw, viz., that, since the real self is quite transcendental, the empirical self is mere whim and subjective inclination, except in so far as it is absorbed in the social system, which by comparison is the concrete representative of the absolute. It is worth remarking that this treatment of an ethical problem is quite obviously preliminary to Mr. Bradley's theory of the world and the individual in his later metaphysical works.

The more constructive part of the "Ethical Studies" is contained in the essay on "My Station and its Duties," the thesis of which may be paraphrased as follows: My real self is the self which I attain by making myself an organ for the fulfilment of social functions. The individual considered by himself is an abstraction and, therefore, without reality. In society, on the contrary, the individual finds his true self realized. Society is mind objectified; it is an organism which, in the long run, *will* maintain itself even against the individual. The beginning of moral wisdom is to find one's station in this society and to subordinate one's capricious will to the ends of the whole. In Mr. Bradley's own words: "Here is an universal which can confront our wandering desires with a fixed and stern imperative, but which is yet no unreal form of the mind, but a living soul that penetrates and stands fast in the detail of actual existence. It is real, and real for me. It is in its affirmation that I affirm myself, for I am but as 'a heart-beat in its system.' And I am real in it; for, when I give myself up to it, it gives me the fruition of my own personal activity, the accomplished ideal of my life which is happiness. . . . We have found ourselves, when we have found our station and its duties, our function as an organ in the social organism."⁷

It is pretty clear that in effect this position subverts all individualism whatever. Society offers the individual a station. The burden of this station he must assume and he must find his full personal satisfaction in bearing the burden. Whatever part of my character does not go to the performance of my duty in my social station is nothing, "an idle appendage," as Mr. Bradley calls it. The station is there, objectively real, making a demand upon me; I do not

⁷ "Ethical Studies," pages 147 f.

make it, but find it. It is the military ideal of duty, with the military dislike of the man who tries to better his orders. Hence Mr. Bradley's famous dictum: "To wish to be better than the world is already to be on the threshold of immorality." And he continues: "What is the 'world' in this sense? It is the morality already existing ready to hand in laws, institutions, social usages, moral opinions, and feelings. . . . The moral world with its social institutions, etc., is a fact; it is real; our 'ideals' are not real. . . . We should learn to see the great moral fact in the world, and reflect on the likelihood of our private 'ideal' being any more than an abstraction, which, because an abstraction, is all the better fitted for our heads, and all the worse fitted for actual existence. We should consider whether the encouraging oneself in having opinions of one's own, in the sense of thinking differently from the world on moral subjects, be not, in any person other than a heaven-born prophet, sheer self-conceit."⁸

There is likely to be little doubt that Mr. Bradley has correctly interpreted, though he may somewhat have exaggerated, the tendency of absolute idealism in regard to society and the individual; in fact, it would be easy to show that the analogy between the absolute and Mr. Bradley's view of society is complete. The tendency is not wholly one of personal bias, but has a logical source, for the essence of absolutist logic is the thesis that there can be no relation without inclusion in an overlapping unity. Social relations between conscious individuals, however, are precisely the poorest illustrations of this type of unity, for here the unity and the relations are identical. There is no evidence whatever that the relatedness must be a case of inclusion or that the inclusion is anything more than a figure of speech. To return to the more concrete ethical problem, the problem of positive freedom, it is clear that a denial of the old antithesis between social control and individuality in no way involves Mr. Bradley's view of "my station and its duties." What Mr. Bradley neglects, and what the absolute idealist is almost fated by his absolutism to neglect, is the evident fact that the individual in many cases must make rather than find his station. The fallacy is that common to all theories which interpret evolution on the analogy of logical implication, the fallacy of equating the consequent with the antecedent. Because a moral precept or an institution after it is established will give the individual a "station" in the social system, it is supposed that the creation of such a precept or institution is a development of implications already existing in the system. The fact is, however, that such implication can usually be shown only after the fact and then often in the loosest sense. There is no element in the freedom of a civilized state which has higher social value than the liberty to

⁸ *Ibid.*, page 180 f.

try experiments, and the tolerance which makes such experiments possible is the finest flower of the belief in positive freedom itself, the belief that individuals may thus create a new and better social order and that reasonable beings may be depended upon in the long run to hold fast to that which is good. Such freedom is consistent only with the view that social evolution is an epigenesis.

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HUMANISM AND SCIENCE

AN interesting application of a thoroughgoing humanism to the philosophy of science is to be found in the recent articles by Professor Warner Fite.¹ Holding that pragmatism has had commerce where it ought not to have had, and in its present generation and development shows a good deal of this unhappy hybridity, or, to seek a more exact figure, holding that pragmatism, after arguing with force for the instrumental character of all science, has fallen prey to this very instrument, the author points out the true path of regeneration, or, the liberator from this self-incurred restraint. Pragmatism, that is, especially the particular brand advertised as instrumentalism, has not gone far enough. On its mission of exhibiting the man-made character of all knowledge and especially the human value of mechanism as an instrument, it has been arrested and turned aside by the sign-post it has itself erected. I suppose the line of thought thus to be attributed to pragmatism is as follows: It insists upon the plasticity of scientific constructions by pointing out their human origin and uses; these human uses in turn are heavily emphasized, and the importance of our present scientific attainments is shown; lastly, these scientific constructions are looming up as so important that their original plasticity is forgotten and they are seen—behold!—as absolute. But intellectual midwifery is still an important part of the philosopher's work, and Professor Fite undertakes to help to their birth the true implications of humanism.

The categories of science, then, are taken as instruments. But the only needs to be satisfied by such instruments are those for bread and butter; and as a matter of fact, we are told, the pragmatist regards the bread-and-butter needs as the only needs. Whatever of the more spiritual or more intellectual or more social needs are to be admitted, they are dismissed shortly as only disguised forms of the essential and all-fundamental bread and butter needs. But such a position is shockingly of earth earthy to Professor Fite; and thus the

¹ *Philosophical Review*, Vol. XXIII., pages 410, 506.

lamentable handicapping of the pragmatist by his instrumentalism would seem to have extended even to his conception of human nature.

Hardly less serious is the result upon the pragmatist's epistemology—in spite of his aversion to the term, others insist upon using the word "epistemology" in connection with his doctrines. For the pragmatist any constructed theory of science is in the boldest sense *constructed*. It is a thing consciously invented and in no sense discovered; the interpretation is foisted upon nature, not read out of her. Thus the third count in the indictment we are following refers to the building up of a world outlook and scientific order faithful and impersonal by presumption, but arbitrary, capricious, and subjective in actuality.

The way of right instruction, to follow Professor Fite, is to be found incidentally by bridging the yawning chasm between the one-sided realistic emphasis upon the "hard outer fact" and the one-sided pragmatist emphasis upon the personal equation. Such an opposition between the two arises entirely from a preliminary assumption that if nature's phenomena are to have an independent status of their own it must be a cold and impersonal dignity. This arouses the excessive loyalty and enthusiasm of the one, and the excessive suspicion of the other. The one wants to put everything into terms of independent mechanism, the other tries to construe all as the arbitrary creation of the personal subject. But the key to the difference has already been hinted at: give up the notion of a "cold" nature in favor of that of a personal nature; realize that our knowledge of natural science is different in degree only, not in kind, from our knowledge of social fellow; and the difficulty rests no longer on solid basis.

I

Now before essaying remarks upon the latter constructive article, I can not resist the desire to notice points in the earlier articles of more critical nature. Professor Fite, as just noted, has indicted pragmatists, and especially those with the instrumentalist emphasis, on at least three counts. These may well occupy us a few minutes.

"Why does pragmatism take refuge in instrumentalism? This question brings to our attention the strange reverence of the instrumentalists for the point of view of modern science."² "The pragmatist demonstrates his regard for modern science by taking the mechanical view without criticism; and then he makes peace with himself by interpreting the mechanism as an instrument for the satisfaction of practical needs. The result is instrumentalism. By this compromise the path is closed to any further development of a humanistic logic. The very name means that the instrument, now once for

² *Ibid.*, page 424.

all accepted as such, stands as a barrier to any deeper or more human interpretation of our needs. In instrumentalism . . . thought and logic have congealed. . . . Instrumentalism is an unholy alliance with absolutism."³

It is rather disappointing that Professor Fite has not given us at any point in his criticisms explicit—or even more vague and general—references to the writings and portions of writings he happens to be criticizing. Such more definite references would have been doubly helpful to the reader: not only by giving him the clues for assisting, if so inclined, in tracking down each particular *bête noire*, but also by affording him additional keys to the critic's own position.

In the present case it is a little hard for me, at least, to understand exactly what is denoted by "the mechanical view" or "the mechanism." If it possibly refers to a mechanistic conception of the world order in the traditional sense of the term—which I suppose any one would hesitate to believe—the assertion of a predilection of the instrumentalist for this view seems to run dead against, and is even definitely denied by, Professor Dewey's words spoken in several places in favor of the evolutionary conception that "Reality is . . . dynamic and self-evolving" and "shows . . . tendency and purpose." "No account of the universe in terms *merely* of the redistribution of matter in motion is complete . . . for it ignores the cardinal fact that the character of matter in motion and of its redistribution is such as cumulatively to achieve ends—to effect the world of values we know."⁴ Compare also Mr. Schiller's statement of naturalism as "valid enough and useful as a method of tracing the connections that permeate reality from the lowest to the highest level: but when taken as the last word on philosophy it subjects the human to the arbitrament of its inferior."⁵ If Darwin's influence upon philosophy is that he freed the new logic of change and generation for application to mind and morals and life; if biology, psychology, and the social sciences point to rehabilitation of belief in a new kind of philosophy; and if this new logic, this new philosophy, is the one defended by the pragmatist, his "unholy alliance with absolutism" must indeed be a highly clandestine affair and one totally barren of offspring.

After all, it may be said, I am belaboring a man of straw. My answer is that I hope so. It is to be hoped, surely, that, however he may have expressed himself in words, Professor Fite had in mind as the pragmatist's fetish some conception of "modern science" not limited to a "mechanical view."

³ *Ibid.*, pages 426-7.

⁴ "Studies in Logical Theory," Preface, page X.; "Influence of Darwin," pages 8-9, 34, and all of title essay.

⁵ "Humanism: Philosophical Essays," Preface, page XXIV.

Perhaps, then, the fault found with his opponent is that he takes his *biological* or *evolutionary* conception of the world with blind faith. "No amount of articulate coherence in the answer that nature makes to the evolutionist will prove that this is the only answer that nature has to give. . . . Nature might still reply with equal definiteness to some other hypothesis, not less comprehensive than the hypothesis of evolution, the meaning of which is beyond our power to grasp. . . . To claim that our human science is the only way is to commit the crass anthropomorphism of supposing that the powers of nature are limited to those of our human imagination."⁶ The question here becomes not whether the critic's methodological conception of evolution as a tentative hypothesis is the correct one (which who would deny?), but rather whether the pragmatist-instrumentalist actually holds any other conception. Does the latter take the evolutionary account of nature as the final, the all-sufficient one? Again one is embarrassed by the absence of any cues, any references direct to points in pragmatist documents where the pernicious position is maintained. It is true, of course, that pragmatism is the most "biological" of latter-day philosophies, and that its emphasis upon the functional and purposive character of thought, with all the attendant emphases, is founded upon a voluntarism that in turn owes its origin largely to the evolutionary conception of life. But the question is: Is this evolutionary conception bolted without salt or seasoning?

I have just quoted one passage that, as much as any, appears to show Professor Fite's belief that it is so bolted. But in one of Professor James's works occurs a passage almost identical in meaning. "Were we lobsters, or bees, it might be that our organization would have led to our using quite different modes . . . of apprehending our experiences. It *might* be, too . . . that such categories, unimaginable by us to-day, would have proved on the whole as serviceable for handling our experiences mentally as those which we actually use."⁷ And if Professor James is not to be singled out, according to our author, as an instrumentalist (he is not always specific in naming those to be pilloried for the public scorn), then note the passages of Professor Dewey's in which he puts the question "whether the scientific formula as such or the direct, vital experience as such is, for the philosopher, a better index of the nature of reality." It is expressly given as his "contention that a direct experience is a better index for philosophy than the knowledge phase as such of an experience," "that an experience in which a symbol is experienced in its fulfilment or embodiment, is better than one in which the symbol

⁶ *Ibid.*, page 523.

⁷ "Pragmatism," page 171.

alone is experienced." The "veriest unenlightened ditch-digger" has a truer and more genuine conception of reality than any scientific formulation—evolutionary or otherwise.⁸ Surely, to the pragmatist, if "theories thus become instruments ["mental modes of adaptation to reality"], not answers to enigmas, in which we can rest," then "pragmatism unstiffens all our theories, limbers them up and sets each one at work"; and science as well as common sense and philosophy must "seem insufficiently true in some regard and leave some dissatisfaction."⁹

Another accusation of the pragmatist offered by Professor Fite is less ambiguous, and yet (or, therefore), is more surprising and even puzzling. "For the pragmatists the Copernican theory would be, not a discovery, but an invention . . . a theory of the heavens would be regarded as one of the necessities . . . of navigation. The older Ptolemaic theory . . . [was] no longer available . . . and the Copernican theory was devised to take its place." Thus the pragmatist "lays himself justly open to the charge of creating a subjective and fictitious world by speaking constantly as if an invention were invented out of nothing." Further, the pragmatist says "that any unwelcome experience he will decline to treat as a fact. But this only means . . . that the distinction between truth and fiction is thoroughly artificial and capricious."¹⁰

Can this be the reappearance of that apparition—better, hallucination—believed to have been some time since laid? The past discussions of this point and its seemingly sufficient refutation would almost warrant an ignoring of the topic; but having come back in at the window, let it be put out at the window. One almost wonders why Professor Fite has not used again another argument that is in certain ways very similar: I refer to the "solipsism" of pragmatism. And yet at times he seems to imply this, too, though hardly with a challenging explicitness. To my own mind, one of the clearest and most direct refutations of the above stricture on the pragmatist or humanist is to be found in Mr. Schiller's chapters on "The Making of Truth" and "The Making of Reality."¹¹ It is interesting to note this writer's distinction between "primary" and "real" reality. "Primary" reality may "in a sense be called 'independent' of us . . . for it is certainly not 'made' by us, but 'found.' But, as it stands, we find it most unsatisfactory and set to work to remake it . . . as immediately experienced, it is a meaningless chaos, merely the raw

⁸ "Pure Experience and Reality," *Philosophical Review*, Vol. XVI., page 419; also "Reality as Experience," *This JOURNAL*, Vol. III., pages 253-7; and "Influence of Darwin," pages 182-4, 191-2.

⁹ James, *op. cit.*, pages 53, 190, 192, 194.

¹⁰ *Op. cit.*, pages 413, 418, 428-9.

¹¹ "Studies in Humanism," Chaps. VII. and XIX.

material of a cosmos." "Real" fact is made from "primary" fact by selection and valuation, which segregates real from apparent. The implication here is that the making of reality is not creation *ex nihilo*. Further, it is not capricious, is not whatever the subject pleases. That nature "is utterly plastic to our every demand" is only "a travesty of Pragmatism." Experience is, however, confused and blurred and meaningless until the motor dispositions of the subject by their selective functioning introduce some principles of order and meaning into the whole, with subsequent distinctions of true and false. Thus "the nature of things is not determinate, but determinable."¹²

Professor James makes a statement also meeting the issue squarely. "We all three ["Dewey, Schiller, and myself"] absolutely agree in admitting the transcendency of the object (provided it be an experientiable object) to the subject, in the truth relation. . . . His [Dewey's] account of knowledge is not only absurd, but meaningless, unless independent existences be there of which our ideas take account and for the transformation of which they work."¹³

This "transcendency of the object," now, though less explicitly set forth, perhaps, may be considered as one of the incidental contentions of an important series of articles by Professor Dewey.¹⁴ In any experience where thought is awakened, "the presented facts are brutally, unquestionably, stubbornly, there, but they present themselves as *not* the whole and genuine reality." But this "transcendence," it must be noted, is not an epistemological, only a logical transcendence; that is, "the emergence of this duality [of self and world] is within the conflicting and strained situation of action."¹⁵ The fundamental point, so far as we are here concerned, remains the same, namely, the question whether a new theory is to pragmatism "an invention out of nothing," and whether "the distinction between truth and fiction is thoroughly artificial and capricious." This qualification of duality, it need hardly be said, involves no recognition of its arbitrariness; its relativity to the experiential situation with its manifold of striving life with its helps and hindrances and neutrals, makes it relative to *that manifold*, not a pure invention. And if to arrive at a truth, the central agent of the situation of action must needs survey and experiment with his situation, the truth becomes *ipso facto* anything but artificial and capricious.

I can not understand Professor Fite's extreme position in his

¹² "Humanism: Philosophical Essays," footnote, page 12.

¹³ "Meaning of Truth," pages xvi-xvii of Preface.

¹⁴ "The Control of Ideas by Facts," This JOURNAL, Vol. IV., pages 197, 253, 309.

¹⁵ *Ibid.*, pages 255, 310. Cf. also James: "Essays in Radical Empiricism," pages 52, 53, 57.

attack on the pragmatists except as being due to a persistence in his mind of the epistemological dualism. The relativity of a dualism for knowledge is most clearly, I believe, brought out in the last-named writings of Professor Dewey. Once the conception is grasped, I think the distinction between realist and pragmatist as blind respectively to the personal subjective and to the independent objective phases of knowledge, is seen to be manifestly unfair, at least to the latter.

Professor Fite enters still another charge. "Our American pragmatism is disposed to emphasize the need of bread and butter and to hold that spiritual needs are only bread and butter disguised. At least I feel compelled to say this of the pragmatism of my friends, Professor Dewey and Professor Moore."¹⁶

Just what is meant by "spiritual needs" must be determined, I suppose, from the context. As a matter of fact, pragmatism does, of course, count itself as the true spiritual philosophy, and even has convinced certain members of other philosophic "schools" of this one of its missions—a good example being, I venture to say, Professor Perry. But the context would seem to interpret our author as giving two (at least) particular meanings to "spiritual." "Shall we say . . . that in the scientific construction of our world, our *deepest* need is for a world that shall be from our human standpoint *intelligible?*"¹⁷ Furthermore, "our needs . . . are, even in their most practical aspect, *social.*"¹⁸ Now, intelligibility, far from being denied as a valid human motive by the instrumentalists, has been by them recognized as growing out of, and necessitated by, the more irrational and blind needs. Professor Moore says: "thought's satisfaction is not independent of the satisfaction of the other interests. Rather does it seem to find its satisfaction precisely in quelling the dissatisfaction due to the conflict of other instincts. Their extremity is thought's opportunity."¹⁹

To show that bread-and-butter interests, forming the groundwork for the rise and development of all man's higher and more rationalized and socialized interests, are primary biologically and genetically, is certainly not to imply that they are primary in any honorific sense. If Aristotle could glorify and exalt reason at the same time that he preached its proper function to be the moderator and organizer of the emotional and vegetative energies, it would seem that the instrumentalist's "conflict-mediational view of thought"²⁰ need not degrade and debase it. That intelligibility is not a motive working

¹⁶ *Op. cit.*, pages 414-15; also page 418.

¹⁷ *Op. cit.*, page 418; also page 423. Italics are mine.

¹⁸ Italics the author's.

¹⁹ "Pragmatism and Its Critics," pages 119-20.

²⁰ *Ibid.*, page 124.

in the cold isolation traditionally imputed to it is admitted by Professor Fite himself. Ceremoniously ushered out the front door, the practical reason has been (unconsciously) admitted by the rear. After asking "how a conception can really be more convenient except as it renders the object more intelligible," a paragraph or two later he adds, "and renders it intelligible, we may go on to say, from the standpoint of our human motives for action."²¹

That the instrumentalists have overlooked or denied the social character of our needs will seem on the face of it as much to be challenged as the other changes. As a matter of fact, the two instrumentalists explicitly mentioned by Professor Fite are of all the pragmatists, so far as I know, the most clear-spoken and insistent in expounding the social character of all mental life.²² There is, however, a wide difference here between the positions of Professor Fite and of these writers. While the former argues for the human-fellowship feeling at bottom of the knower's relation to the known or nature, the latter employ the term "social" to refer to the character of the knowing agent. For the former, all cognition is a social relation of some sort *between* two fellows; for the latter, it is a relation of public (and hence not subcutaneous and private) attention toward a more or less objectified subject-matter, this attention participated in by the component "individuals." This is speaking by and large. The instrumentalists at times may come very near to Professor Fite's conception. Professor Dewey says in one place: "The common statement that primitive man projects his own volitions, emotions, etc., into objects is but a back-handed way of expressing the truth that 'objects,' etc., have only gradually emerged from their life-matrix."²³ But the distinctly *human fellow* character of the known is not formulated.

If I may make bold to say so, I think that instead of denying to the instrumentalists any recognition of the social character of knowledge, it would seem to have been preferable for Professor Fite to have made the above concessions and thereupon to have drawn the distinction as the basis for his own contribution.

In passing now to the more constructive work I can not escape the feeling that the long array of marshaled quotations now behind us calls for apology. If I have one it is only that the assertions of Professor Fite have been given us with such a lack of cues as to the exact whereabouts of his opponents, that in reading his surprising attacks I for one felt for a moment a bit at sea. Obviously, categorical state-

²¹ *Op. cit.*, pages 419, 420.

²² *Cf.* especially Moore, *op. cit.*, all of chapters, "Pragmatism and Solipsism" and "Social Character of Habit and Attention."

²³ "Studies in Logical Theory," footnote, page 49.

ment is most easily and economically met by direct counter-statement, but texts selected as fairly as possible from the authors discussed have their own validity and value. I hope observed sins of omission have not led me into too flagrant sins of commission.

II

The particular contribution of Professor Fite we find suggested fragmentarily in the first paper and developed more positively in the second.

The notion of a "cold" nature must be given up in favor of the notion of a personal nature; we are to realize that our knowledge of natural science is different in degree only, not in kind, from our knowledge of social fellow. Salute your world, give its varying details the consideration you give your personal friend, look for *motives* back of its behavior toward you after the fashion of motives in your own conduct, and no longer will you feel called upon to explain any gulf between its behavior and your own knowledge thereof. Or, to put it more accurately: view the scientist's "conversation" and "bargaining" with his objects as similar to the layman's "experimentation" in learning an acceptable hour for dinner or luncheon with his friend, and the personal, social form of intercourse is seen to be the type of all knowledge. What has become of the much-vaunted—or much-rejected—"independence" of the object? The object enjoys independence just as much as, but no more than, the social fellow. It, too, has its own motives and types of behavior that have to be learned by the knower; it, too, never gives solid, cold rebuff, but always a refusal qualified and suggestive and it, too, is quite responsive upon correct interpretation and approach.

Here, then, if I understand Professor Fite, is the spirit of pragmatism read into implications leading beyond the place where instrumentalism has halted it. A larger humanism such as this reads the world in terms of personality, but personality on the world's own part; it is not only object of, but is possessor of motives more or less of the human type. "A fact is a function of the object's being known," and it is known when it and the knower have come to a mutual relation of "agreement" and "reciprocity." (It would be interesting if Professor Fite were to go further by indicating what ontological implications, if any, are to be drawn. Is nature actually constituted as the scientist methodologically considers it? If so, are these motives—granted that the point can not be definitely ascertained and proved—to be assumed existentially as attributes of personality in the human sense? And if so, is this to be conceived of as innumerable personality-fragments, as individual personalities, or

as an infinite personality? Or, after all, is the doctrine to be taken wholly as methodological and not at all as metaphysical?)

The view set forth is likely to strike a responsive chord in many a breast—speaking, of course, of strictly philosophical attitude, not of possible religious implications. Such responsiveness would be due, I suppose, largely to the feeling on many hands that the method of science has been carried too far by being viewed too blindly and submissively. At the present time we see in many places one of those rhythmic swings back from the over-formal, the over-intellectual, to the lively immediate, the warmly human. We have been taught that natural science is a perfectly detached, disinterested, cold registration of hard facts, gratifying a certain love of truth for truth's sake, and, as it merely happens, incidentally yielding fruits found by the technologist to be of value for human living. Human nature, however, is not accustomed to submit long to a libelling of its character; and in the present case it may be rather vulgarly figured as regarding a pseudo-portrait of itself with the remark, "Do I look like that!" The swing back by the merely humans from this extreme conception of the relation of man and nature is then the movement in which Professor Fite is sharing.

The history of human thinking in the large shows a pendulous oscillation between extremes, but this mere fact instead of justifying, rather cautions against, our own extreme habits of reaction. And I think Professor Fite's position amounts to an excessive movement of reverse. Instead of considering nature as dead and cold, the scientist actually treats it as a reciprocating personality (or personalities) to be considered in terms of its motives. The important thing, we are frequently told, is the *motive*. "The aim of science is not merely to find in nature an opaque and unintelligible instrument, still less to record a set of positive and absolute facts, but rather to discover in nature an activity intelligibly motivated in like fashion with her own." "Newton's law simply reads into the universe that aspect of motive which makes our own action intelligible."²⁴ Anthropomorphism is actually and professedly embraced as part of the scientific method.

My inquiry at once is this: *does the scientist behave towards the world's activities as activities guided by human, or sub-human, motives?* The first subdivision of this inquiry is the question: *What initiates the scientific investigation, calls it into being, starts it off?* Is the investigation opened by an introjective act that imputes a human nature sort of guidance back of or within the overt activity?

The direct personal appeal of nature to sense and feeling is the inspiration of innumerable souls. The caress of a peaceful scene, of a

²⁴ *Op. cit.*, pages 420-21.

balmy atmosphere, of a well-ordered and harmonious landscape, may awaken a song in the heart, and may prompt to acts of self-expression of highest artistic value. Such inspiration, however, belongs to the province of esthetics, not to that of science; and the various languages which nature speaks to him who holds communion with her visible forms is language translatable only into verse, pigment, harmonies. So long as the relation remains on this level of appeal, the human response is in terms of passive absorption, of appreciative repose; and the interest of the contemplator is in perpetuating or deepening the ecstatic moment. But let nature once reveal herself as even slightly subject to manipulation, the least bit artificially modifiable in her changing phases, and man has come to himself, has learned that he has a mind. With this new interest—the interest in control leading to use—we have Man the Manipulator, and with the increasingly precise determination of the exact limits to this power we have Man the Scientist.

That the esthetic interest enters into the scientific spirit is, of course, evidenced in many ways, in system building, in much mathematical work, etc.; but it serves principally to fill in lacunæ, to put that finished completeness into the concepts developed, or to hold the investigator absorbed in his problem while the ultimate end falls temporarily into the background. In truly scientific work, it is always a motive incidental and complementary to the active and practical interests.

Professor Fite's use of the term "motive" is not explicitly clear. The term is commonly given two uses, as a conscious psychological element determining action, and as an envisaged end to action, both uses connoting the character of purpose. For Professor Fite, then, I take it, nature as object of true scientific method is really a nature manifesting purpose or purposes, and these purposes are more or less of the human type. Now, unless I am wholly wrong, this conception of the world implies a recognition of some sort of mind (taken in as wide a sense as you please), some form of reciprocating will at bottom of each phenomenon or set of phenomena of nature. The point is, of course, that this reciprocating will is explicitly or implicitly *recognized* by the investigator, that he treats any set of phenomena in question in the light of what would occur if he himself were at their heart and directing them.

Now, the difficulty in such a theory would seem to be traceable to an inadequate analysis of every-day experience. As a matter of fact, we do not naturally know and feel the world over against us after the fashion of an hylozoistic demonology. We may lose temper at bumping the head in the dark, or feel a weird sense of potency in certain lucky combinations, or grow exasperated at the endless flopping of

the window-shade; but in all such cases there is no true recognition of, or feeling toward, a hidden power acting through intentions and motives. True, we become angry or exhibit some other attitude considered strictly social in character, but this attitude is more akin to mechanical reflexes than to conscious replies. In other words, we fail in such incidents to abstract sufficiently from the vague irritatingness or the somehow-or-other potency of the object present; yet we do not go so far as to *read into* the object another will after the fashion of our own. To awaken the simple and more reflexive emotional attitudes does not require recognition of an agent acting with conscious purpose or with motive; and it is only the vague suggestion of further unascertained power in the object that constitutes the situation we are considering.

Exactly this would appear to be the type of situation in which the scientific interest is generated. Not in the sense of the "other" as being a somehow organized set of motives, a fellow, is the stimulus to experimentation; but the sense of an agency manifested in more or less vague and unmeasured forms of dynamic activity that have reference to us. The answer to the first question, then, is that what initiates the scientific investigation is not a recognition of motives in the natural world conceived after the manner of human purposes, but is a vivid sense of powers for good or ill manifested as yet uncertainly by the more or less mysterious object.

A *second* question follows naturally upon the first: Once under way, what conception of nature is constantly assumed implicitly or explicitly in scientific procedure?

Ostensibly, of course, the scientist as such assumes a detached and disinterested attitude toward his subject-matter. That such disinterested interest is through and through just this, is, however, plainly untrue. Just as the so-called instinct of curiosity may perhaps be described as instability between the competitive instincts of approach and of withdrawal, so in any scientific research there may be found by deeper analysis to be always something in the balance. The investigator may be commendably painstaking and "impersonal" in his observation and recording of successive phenomena, but this study is certainly taking him somewhere, is going to decide something or other, and this is connected up, however remotely, with his and others' systems of values.

The theory of the scientist's investigation of nature as modeled on the social man's tactful investigation of his friend's wishes, advanced by Professor Fite, brings out well the interaction character here involved. One may not attempt too brusquely to handle his nature or his friend, nor presume too hurriedly in his estimate of what this "other" may do in given cases. On the other hand, one is usually

not to be content with waiting, watching, and listening. Tentative stimuli or proposals must be advanced from time to time, letting the response in each case sharpen and define more clearly the stimulus or proposal next to be advanced, until at last the investigator has his object fairly well sized up. The interaction character present in experimentation with nature is thus well shown.

We may ask, however, as to the exact character of the beings between which this interaction takes place. Does the subject or observer regard his subject-matter as actuated by *motives*, which motives after due experimentation he learns to read off? If so, then the finished conception of the object, after it has become scientifically "understood," should be in terms of the object's purposes, its own why's and wherefore's. For of such is our satisfactory understanding of a given human fellow. It will be seen at once, however, that the peculiar intent of the thing, the "inside" reason and purpose of its behaving in the observed manner, is what the scientist least claims to have worked out. Electricity may be viewed by the physicist as a fellow, if you will, but it is most certainly not a fellow whose "reasons" we may understand as we do those of our human fellows. And the difference goes back ultimately to the fact that the motives of human nature (and animal nature in general) are crystallized or sublimated forms of animal instinct—protoplasmic impulsions that find no echo nor parallel in the behavior of the inorganic. The inanimate simply is not to be and can not be understood in these terms. We learn by dear experience how the inorganic operates, but the experience is dear just because these phenomena know not the control and guidance of human-like motives.

In a word, if the scientist as scientist faithfully renounces for the nonce any other missions—poetic, religious, or what not—and dutifully keeps himself a man of pure natural science, he finds his problems occurring not in terms of a nature seemingly possessed of motives or intents, but a nature only indefinitely and uncertainly beneficial or unbeneficial and hence with centers of action for weal or woe that are yet to be accurately located and measured before he may proceed to control them for his own ends. And once this task is well begun, it grows increasingly evident that this nature of his was mysterious and wonderful just because it refused to be understood in terms of motives.

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REVIEWS AND ABSTRACTS OF LITERATURE

On the Cosmic Relations. HENRY HOLT. Boston and New York: Houghton Mifflin Company. 1914. 2 vols. Pp. 989.

Mr. Holt's book is interesting in a variety of ways. It is a personal document from a candid, generous, and very human individual; it contains a voluminous review of phenomena studied by the Society for Psychological Research and some other similar material, and it proposes a theory of "reality" for which Herbert Spencer and Henri Bergson are the most notable authorities.

From Spencer and from Mr. Holt's own buoyant temperament comes the author's confidence in the evolutionary progress of the race; from sources less easy to enumerate, but which have found in M. Bergson their most gifted modern spokesman, and from Mr. Holt's rare sense of kinship with nature and from a spontaneous delight in her varied beauty, comes his conviction that the world is a place in which a man is normally at home. "I have no time or space or inclination to argue with those who deny a plan in Nature. He who does, probably lives away from Nature" (p. 931).

"Our 'Cosmic Relations' is a brief term for the interactions between Soul and Universe." "With some of the reactions we are very familiar, some we know vaguely, there may be others at which we merely guess, and probably the vast majority we do not even guess about" (p. 6). But evolution is helping us to penetrate into the little known, for "it is plain corollary of evolution that there should at times appear germs of faculty but faintly and rarely apprehended, giving rise to phenomena new, strange, doubtful. In this vague field lie many, perhaps most, of our future possibilities, and it would be a very chary review of our cosmic relations that should leave it out, or that even should refrain from any inferences regarding the unknown that our faint glimpses of it may legitimately suggest" (p. 71). Somehow life has advanced from the darkness and monotony of the protozoön's life in a puddle to the exaltation in the presence of what is most beautiful and inspiring in the world. Part of Mr. Holt's purpose is "to impress that, as our universe has been a gradual revelation, up step by step from the protozoön's, ours is presumably only a part of one as much beyond ours, as ours is beyond the protozoön's. The amphioxus must have vague feelings of something beyond what it can sense; and far more certainly do we" (p. 58).

Mr. Holt's chief concern is with the chances of immortality, an idea very properly discredited when it was found that authority was not evidence, but for which real evidence must now be admitted to exist, Mr. Holt believes, if the results of "psychical research" are studied with an open mind. Any discussion of the value of that evidence or any review of the portions of it brought together would far exceed the space available. There is no doubt that it contains much extraordinary material, fragmentary, difficult to estimate, but undeniably impressive, and that it has been treated by the scientific skeptics with a rather supercilious

indifference. It is certain, too, that some of those who have found this evidence convincing have been men of undoubted scientific capacity and intellectual honesty. Mr. Holt shows no impatience with the skeptics; he rather invites his readers to share with him an imaginative vision not unjustified, he believes, by the evidence at hand, and which should, in his opinion, contribute to the richness, freedom, and spontaneity of life on its higher levels. The following passage by William James,¹ quoted on page 933 of Mr. Holt's work, is worth repeating for its quality and for its opinion.

"When I hear good people say (as they often say, not without show of reason), that dabbling in such phenomena reduces us to a sort of jelly, disintegrates the critical faculties, liquefies the character, and makes of one a *gobe mouche* generally, I console myself by thinking of my friends Frederic Myers and Richard Hodgson. These men lived exclusively for psychical research, and it converted both to spiritism. Hodgson would have been a man among men anywhere; but I doubt whether under any other baptism he would have been that happy, sober, and righteous form of energy which his face proclaimed him in his later years, when heart and head alike were wholly satisfied by his occupation. Myers's character also grew stronger in every particular for his devotion to the same inquiries. Brought up on literature and sentiment, something of a courtier, passionate and disdainful, and impatient naturally, he was made over again from the day he took up psychical research seriously. He became learned in science, circumspect, democratic in sympathy, endlessly patient, and above all, happy. The fortitude of his last hours touched the heroic, so completely were the atrocious sufferings of his body cast into insignificance by his interest in the cause he lived for. When a man's pursuit gradually makes his face shine and grow handsome, you may be sure it is a worthy one. Both Hodgson and Myers kept growing ever handsomer and stronger-looking."

The central feature of Mr. Holt's imaginative vision is the idea of a world soul or cosmic consciousness from which we derive our fragmentary lives, and from which we are cut off during our waking hours by the machinery of physical existence, but of which we may (Mr. Holt is sure we do) gain glimpses in dreams.

Mr. Holt's dream experience is one that he may well be envied, and must strike most of his readers as evidence of an exceptionally gifted temperament. Never, he tells us (p. 892) "in my dreams have I seen or heard anything extraordinary in the arts where I have some trifling capacity; while in some arts where I have no capacity at all, I have from childhood seen things more beautiful than any human being has ever made." For these splendid visions Mr. Holt can not believe himself responsible.

Mr. Holt does not preach or instruct. He offers not discoveries, but suggestions. What psychical research may find out can not be decided to-day. To unlimber the guns of scientific method against so human a

¹"Memories and Studies," page 194.

book would not be profitable. If, however, a philosophical examination were attempted, the first task in hand would be a study of the idea of evolution. In the form of it advocated by Mr. Holt many students of the subject may detect the old notion of a divine providence. Mr. Holt states his faith in teleology with explicit frankness, but teleological metaphysics is just what the idea of evolution is being purged of. This will mean to many the vanishing of evolution, and that will be in some quarters a doctrine of despair. That, however, will be because of another conviction of Mr. Holt's that is certainly an error, expressed in the very first paragraph of his book. This is that the modern mechanistic theories, which are simply the result of successful technique and which have replaced the supernaturalism of preceding generations leave the world vacant and uninspiring. "With such a god, goes most that such a god implies; and until we assimilate new conceptions of the power behind the universe, we are getting along with a short supply of faith, and in some respects not getting along at all well" (p. 1). No doubt the significance of the world must be gotten back in terms very different from the old terms. This is, however, being done, and with the great difference that the significant character of the world is sought not behind the world, but within it. The philosophy that supports human achievements, actual realization by man of his opportunities, can not be any type of supernaturalism whether it tells us of providence or of evolution, or of God, the absolute or the cosmic consciousness. This is not to be blind to the likelihood of revolutionary discoveries in the future. It is simply to be on one's guard against interpreting really new data in the light of traditional apperceptions, in terms of precisely that tradition from which one imagines oneself intellectually emancipated.

Another question of great philosophical interest is this: Where shall an emancipated mind look for the material of its imaginative vision? And by emancipation of the mind is meant the power to take our conception of the world from the world itself, as our own age with its technique of observation is able to know it. The word "reality" seems still to deter many from going to the world in order to know about the world. Few mortals dwelling in cities, and, one may suspect, still fewer living out of them, have Mr. Holt's sensitiveness to the splendor of mountains, lakes, and light. Take this, for instance (p. 57): "Where I turn South, there rise from the plain two of those picturesque mountains of tilted strata that slope on one side and are precipitous on the other; and as I turn farther to the East I come to the Green Mountains—first, the beautiful reposeful gently-three-peaked Lincoln; next, the unsurpassed gracefulness of the Couching Lion, not the biggest mountain I know, but the one with the most uplift; then after a few lower summits to (though fast becoming shut-out by growing trees) Mansfield, with an outline that seems really ingeniously bulky, sometimes looks bigger than the Jungfrau, and yet in winter, in that strange green twilight that now and then comes over the snow makes one think of fairies.

"Now contrast these lovely things open to my eyes and ears, with our

ancestor's universe of darkness and silence. Then suppose that he had varied the monotony of his existence by splitting himself into a family, and contrast his experience of it with mine if my little daughter should happen to get off her pony and be chased down here by my six-foot boys.

"To emphasize once more the emotional contrast (for all of the contrasts, a reason will appear presently): this beautiful universe, of which I have tried to give you some faint notion, is mine—mine—mine, even the miles and miles of mountains are as much mine to all significant intents, as if I owned them in fee simple. Compare this joy with the protozoön's right, title, and interest in his puddle. And then with all he can do, compare my privilege of making roads to all this loveliness, which was not accessible before, and leaving my gate open to all who care to come.

"Then think of the joy of doing, however badly, what amid all this, I am trying to do with my pencil (among my joys I prize that of not writing with a pen), which has nothing in the primitive verse even to contrast with it.

"Then reflect that the scene before me is but a small part of the universe open to-day—Niagara and the Grand Canyon and the Yosemite and the wonderful Pacific coast, and the Canadian Rockies, and the Alps, the Mediterranean, the Himalayas—the whole wonderful world, and the ocean and the night. Then the great architecture and sculpture and pictures; beautiful men and women; the drama—spoken and danced and sung; and Liszt's Preludes and the Pilgerchor and Beethoven's last quartets. Then, on the more intellectual side, the great books, long talks with great people, and with others who, like not a few of the great ones, are better than great.

"Reflect that beyond the joy of contemplating our universe, men have had the higher joy of creating no little of it—all the art and thought and love. Nature supplied the material and gave the hints, but the production was our own."

One may ask quite candidly, since it is a question here not of science, but of imagination, whether the Adirondacks, Shakespeare, and Beethoven need look for anything whatever to Mrs. Piper. And why should not that ideal of human progress that Mr. Holt so ardently believes in be conceived in terms of actual instrumentalities and of human results and values? Why, in a word, does not such a figure as Pasteur tell us what underlies progress? The mechanistic conception of nature is no longer the idea of a single machine; it is the conception that has arisen out of an advancing human efficiency. It is by virtue of the characteristic causalities which natural things manifest that intelligence finds any scope in this world, the world that Mr. Holt commends so eloquently to our approval. Matter misunderstood seems often enough man's enemy, but matter understood, its habits and docility noted and remembered, is man's staunchest friend. We invite Mr. Holt to share another imaginative vision of human progress where he can join hands with the physician, the engineer, and the statesman, and which will have as its central

feature nature's manifold and beneficent mechanism. This is not the mechanism of the old-fashioned world formula controlling all natural events and all human behavior so that they illustrate one and the same mathematical expression. It is simply the fact of causality in all of its empirical diversity, the type of fact upon which the farmer, the surgeon, and the teacher depend in proportion as they apply a technique or a method. It simply means that this is a world where there are right and wrong ways of procedure, and that these can be discovered by attentive observation. Bergson has called man a tool-using animal. Only in a world like ours where water will turn a wheel and a hammer drive a nail is progressive human power conceivable. Progress provides no less of a vision because man achieves it for himself.

But negative dogmatism is no more worthy here than in other fields, and Mr. Holt has given an example of freedom from it. However we may value his evidence and dialectic, Mr. Holt's book testifies to the delight of using a free imagination.

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Outline of a Study of the Self. ROBERT M. YERKES AND DANIEL W. LARUE. Revised Edition. Cambridge: Harvard University Press. 1914.

This outline in its first edition, has already been reviewed in this JOURNAL.¹ The new edition is prepared in the same form as the earlier one and the content, in its fundamental aspects, is the same. Various minor changes have been made, of which the following are the most conspicuous: the section of questions bearing on marital and prenatal tendencies has been omitted in favor of a general question concerning the proper qualifications of one's mate; the "Index to the Germ Plasm" is not included in the "Outline," but in a foot-note it is referred to as available to those interested; references on individual psychology are added to by the inclusion of Stern, and useful references on sex education and hygiene are included; some of the terms, such as "character" and "temperament" are more precisely defined; various questions are changed in form, transferred to other sections of the "Outline," and a few, of uncertain value originally, have been left out entirely.

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JOURNALS AND NEW BOOKS

THE JOURNAL OF ABNORMAL PSYCHOLOGY. December, 1914-January, 1915. *A Psychological Feature of the Precipitating Causes in the Psychoses and Its Relation to Art* (297-320): JOHN T. MACCURDY. - Art makes two appeals: on the surface is that which we can grasp con-

¹ Vol. XI., page 361.

sciously and which seems free from all obliquity, and beneath this surface, which is only a symbol, is the hidden meaning which speaks to the unconscious. From several pathological cases presented one sees that the suggestive or indirect expression is often more telling than the direct. "Our theory is then that one of the secrets of art has been laid bare by the reactions of the mentally unsound." *Artificial Dreams and Lying* (321-332): A. A. BRILL.—An artificial dream is one which a person makes up when requested to do so. It does not differ from a real dream and its analysis shows the person's difficulties and is just as helpful in the treatment as a real dream. These "arbitrary productions in the waking state" show a "definite relation to lying which is also a conscious way of wish realization." *The Psychopathology of the Family* (333-340): L. E. EMERSON.—One must understand the psychical environment—the family—from which a patient comes in order to understand his particular case. Psychoanalysis is necessary for an investigation of family life, for by it data, which would have remained hidden, come to light. *A Few Dream Analyses* (341-354): MEYER SOLOMON.—Four dreams are presented with the writer's interpretations. Many of the conclusions are contrary to the Freudian theory. *Discussion of the papers read at the Fifth Annual Meeting of the American Psychopathological Association. Reviews:* Theodule Armond Ribot, *La Vie Inconsciente et les Mouvements*: GEORGE V. N. DEARBORN. Morton Prince, *The Unconscious*: EDWIN B. HOLT. Richard J. Behan, *Pain: Its Origin, Conduction, Perception and Diagnostic Significance*: GEORGE V. N. DEARBORN. *Correspondence.*

Buchenau, Artur. Grundprobleme der Kritik der reinen Vernunft. Leipzig: Verlag von Felix Meiner. 1914. Pp. vi + 194. 3M.

Green, J. A. Life and Work of Pestalozzi. Baltimore: Warwick and York. Pp. viii + 393. \$1.40.

NOTES AND NEWS

A MEETING of the Aristotelian Society was held on February 1. Mr. G. D. H. Cole read a paper on "Conflicting Social Obligations." Rousseau's theory of the General Will affords valuable guidance in the present political problem of the place of particular associations in society. In its profoundest aspect it is the expression of the truth that all social organization is the instrument of cooperative action. Wherever two or three are gathered together, a common will different from their individual wills may emerge. The fundamental error of Rousseau's view was that the difference between the body politic and the particular association within it was for him simply a question of size, extent, and membership. He never envisaged a distinction of one corporate will from another by function. Particular associations, therefore, appeared to him as conspiracies against the public, and in principle he advocated their abolition. The key to any rational social theory must be found in some conception of a General Will.

The existence of particular associations is itself proof that the state can not claim a monopoly of the phenomena of collective personality. What superior claim, then, can the state put forward for the allegiance of the individual as against some particular association to which he belongs? The state is in the main a geographical grouping; its rights are founded on this geographical basis. In those spheres of action in which a man's interest is determined by the fact that he lives and makes his home in a particular country or district the geographical group can best express the desires which he shares with his fellows. Here the state is sovereign. It is altogether different, however, in those spheres of action which affect men unequally; for example, in religious and industrial organizations. The incursion of the state into these realms has invariably failed to satisfy the demands of its subjects for freedom and self-government at their work. What is required to reconcile this clashing of the theory of state sovereignty with the fact that some social elements fall outside the sphere of the state is the recognition that the state is itself a particular association. When we do this the body politic loses its omnipotence, and the state becomes *primus inter pares*. Dr. Bernard Bosanquet in a communicated note on the paper said that on the plan set forth we should get at the strongest a loose federation, including representatives of the state and of the "functional associations." The difficulty to be met is the risk of conflict between these. In criticizing Mr. Cole's view he pointed out how fundamentally Hegel, and the philosophy founded on him, contradicted Rousseau on this question of the particular associations. Rousseau's view was natural to one contemplating small states governed by mass meetings. Such states might be captured by the particular associations. For Hegel sovereignty meant the "ideality" of all parts of the community, trade and religious corporations being expressly intended; and by "ideality" he meant the tendency of anything to pass beyond itself and seek completion in a greater thing."—*Athenæum*.

IN connection with the report of the committee on the academic status of psychology, it is of interest to note that at the newly opened University of Frankfurt the courses in psychology under the direction of Professor Schumann are listed under the faculty of science along with the courses in the other natural sciences, and that the courses in philosophy under the direction of Professor Cornelius are listed under the faculty of philosophy.

THE New York branch of the American Psychological Association convened with the Section of Anthropology of the New York Academy of Sciences for a general meeting and social hour on Monday evening, March 22. Professor Raymond Dodge, of Wesleyan University, Middletown, Connecticut, read a paper on "Incidence of the Effect of Moderate Doses of Alcohol on the Nervous System."

DR. W. V. BINGHAM, assistant professor of psychology and education at Dartmouth College, and for the past three years director of the summer session, has accepted an appointment as professor of psychology in the Carnegie Institute of Technology at Pittsburgh. Dr. Bingham will not leave Hanover until September, after the summer session.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

THE DISCOVERY OF TIME

I. THE APPRECIATION OF TIME

THE history of civilization ordinarily omits one half of the narrative. We live in a world of time as well as of space, in which our yesterdays, to-days, and to-morrows are as essential for us as land and sea. The process of social evolution has been one of temporal as well as of spatial mastery, for without a chart of our yesterdays we could never have mapped out the fields and built the cities or planned the empires which mark the stages of our advance. Indeed, not only has the conquest of time been as real as that of the material world, but the two have marched side by side,—from nomads careless of all but the moment's satisfaction, to the world of business and of politics, calculating in the present for the future on the basis of the past. And yet, while we are glad to hear and proud to tell the story of the triumph of mankind over material conditions, the other half of the story remains untold, except as it lies in the manuals of astronomers and chronologers, where its meaning as history is seldom seen.

To be sure one does not have to go far to find the reason. The world that endures has this great disadvantage over the world that expands; we have no sense by which to apprehend it. Yesterday and to-morrow lie beyond hearing or sight. We talk of a "sense of Time"; but the phrase is misleading. No subtle distillation of animal instinct can give us a "sense" of that mysterious process in which the flow of a "future" into a "past" acquires a meaning, and whose "present" invites analysis only to elude it by dissolving continually before our eyes. The sense of Time is really a sense of times, and that is not a sense at all, but the slow product of developing intelligence. A sense of time means a knowledge of happenings. It is to be found only where a memory has been keenly disciplined to its task of knowing the world that was by a mind keenly aware of a world that is; where the historical sense has been called into being, with its consciousness of the past clarified by an analysis of

the present. It is no neglected inheritance from primitives, but the slow, and still most imperfect, acquisition of culture.

Neither calendar nor chronology was worked out in the first place to discover Time or keep track of it. They have to do with events and the problem of tracing their relationships, not with what lies between them. The one deals with recurring events, the other with those which occur but once. As the number of these increases, however, the individual events tend to lose their individuality and attention is diverted more and more to the general statement of their relationships. So, by way of mathematics we pass to the world of abstractions.

Our knowledge of "the past," is, therefore, really a knowledge of things in the past. It seems at first glance as though, by giving each day and year a number we bring them all within the field of knowledge. But the numbers mean nothing by themselves. Only those dates upon which memorable things have taken place really stand for anything. Our dates are like the numbers on city houses; they stand for something other than a stretch of street or of time. The numbered periods which intervene serve little but to insure that dates worth remembering, that is, events of men worth knowing, shall be properly placed. The units between might as well be zeroes for all that we care about them. In other words, though we cover all Time with numbers, we do so only in order to find things in it, and to know where we are when we find them, how far we have traveled from to-day or from other points already familiar. In short, we mark Time by events rather than events by Time.

It is claimed now by philosophers that all of this mathematics of dates, whether of calendar or of chronology, only misleads us as to the real nature of Time, which is not a thing to be measured out, but an everlasting flux moving in mysterious, non-spatial currents through the very heart of things; that the events themselves are not so much set in Time, as a part of it, not simply serving to mark it, but making it, in a very real sense. Moreover, since the relationships between events are in ceaseless readjustment, the more important ones are often obscured by forcing all to conform to external standards on static bases, and so the real nature of Time escapes analysis. We shall come to these considerations in due course. But for the historian all such recent speculations do not affect the fundamental point that, however distorted our appreciation of Time has been, mathematics has made the use of Time possible, and so, ultimately, even the metaphysics which criticizes it. For here, as in the world of space, measurement is the sign of occupation and control. The history of Time begins in numbers.

Dates do not matter in primitive stories. Myths need no arithmetic. All the child's story requires for a proper beginning is "once upon a time." So with the childhood of the race. Poetry, the universal vehicle for the saga, can not well risk marking its marvelous events with exact days and years. There is a sense of mystery in the

Old, forgotten, far-off things
And battles long ago,

which must not be disturbed by too precise information. In fact the early narrative loses much of its charm if it is set too accurately in this prosy world. Dates would break that spell which imparts to vague, half-real events of legend and tradition the spirit of romance. The poet knows the size of his hero's shield, the length of his spear, the numbers of his men,—but these are details which he can clothe as well with unreality and manipulate to suit the situation. On the other hand, one date is like another. Contrast this "once upon a time" with a date. "Once upon a time, there was a man named Napoleon." How romantic that sounds compared with the prose of history: "In 1799 Napoleon obtained control of France!" The dated history is much less interesting. There is no such dangerous venture facing you as in the legend. You know that the historian will not try his imagination, he will not sail off into uncharted seas, but follow his dates in their sad succession to their dreary close. What else can he do? He is trying to be accurate; and accuracy is dull, because it is calculable.

This is one reason for the dislike of history so largely prevalent in our schools,—although the situation is now improving rapidly. It is certainly a healthy discipline for the imagination to be called back from its excursions into the land of romance, where things may happen any way one wills, and forced to follow real roads to Rome. But the discipline becomes affliction when the young traveler is kept so busily reciting the time-table that he never sees the pageant of the past through which he is journeying. When the race as a whole, with all its sophistication, has found it so hard to acquire a passion for dates, how can one expect it of a child? We are apt to forget that the high culture of antiquity did not evolve a satisfactory method for keeping track of time, that even the keen old Greeks never learned—outside of scientific circles—to count the years accurately. Beginners in history might find consolation for their frailties, if they only knew that the greatest historian of antiquity, Thucydides, avoided dates as far as he could, and made his years consist merely of a long summer and a short winter.

And yet the situation is not so bad as it might seem. For, aside

from the fact that our text books in history are no longer monkish chronicles, any one who teaches the subject knows from experience that there are few students—even in colleges—whose dates are more accurate than “once upon a time.” Indeed, that is about all even the best of us commonly can do. What do dates amount to in our own lives? How many of us, for instance, can recall at once, without a moment’s hesitancy, the date of the war with Spain or in South Africa? Tests of dates like these in large classes show ordinarily that not five per cent. have any tendency to associate mathematics with the happenings of their lives, except in the matter of recurring dates, which have to do with the calendar and not with chronology.

We must not be misled, however, by any infirmities on our part. The calendar, and the chronology which the calendar made possible, are not only the basis of scientific history, but of far more than we suspect in the structure of civilization. Try to think what it would be like if we had no dates for our business world, where “time is money” in the most real sense of the word; where every letter bears its date, every paper is issued with it on the title-page; where laws, treaties, the world’s affairs as well as its history, depend so largely upon the relation of one date to another. However much we may still appreciate the vagueness of poetry and romance, we have erected a civilization based on dates, in which the mathematics of Time is as fundamental to human relationships as that of Space is in the conquest of the material world.

II. THE NATURAL CALENDAR

Now, imagine that, instead of the great City of the Past, of which we of the twentieth century have been given the freedom and the rights of citizenship, we have only a little village. Instead of vast horizons charted to the day and the vista of centuries stretching toward the dawn-ages of geology, imagine that we know only what we ourselves can find out and can remember of what other people found out or remembered,—and so through the endless, but misleading tale of barbarian tradition. Imagine that we have no books or implements for measurement, that we can hardly count beyond our fingers or a few notches on a stick,—and then let us try to settle down in the world of Time and Space, as our forefathers had to do, and see how much—or rather how little—of either we could appropriate. A little exercise in such imaginative ignorance (not hard exercise for most of us), will enable us to deal sympathetically with our ancestors, to understand both their age-long apathy about things outside their immediate experience, and so to deal historically with the slow beginnings of the historical sense.

A surprise awaits us upon the threshold of our survey. For, viewing the process from the primitive world to our own, it is apparently a sense of the future rather than of the past which has been most important in the evolution of our civilization. That which has never been, which exists, seemingly, only in our imaginations, turns out to be the very basis upon which we have erected the world of intelligence and activity.

Our commerce, manufactures, education, culture,—everything is for the satisfaction of future needs. It is this sense of to-morrow which stings us to work. The haunting specter of possible want, even when we are needing nothing, the hope of future rewards, the confidence of success or fear of failure,—these are the stimuli which carry us along from savagery to civilization. The savage at first has no sense of them,—or at least but very little. He satiates his hunger by gorging to the full, even when he does not know where the next meal will come from. Why worry about to-morrow; it has not yet come to worry him? This is the attitude of all races in savagery; anthropological books are full of instances of it, from Australia and Borneo to Arabian Bedouins and American Indians. Livingstone calls Africa “the blissful region where time is absolutely of no account and where men may sit down and rest themselves when they are tired.”¹ The negro “dreams away the day in laziness and idleness, although he knows quite well that for the night he needs his draught of water and his log of wood; nevertheless, until sundown he will certainly not disturb himself, and only then, or perhaps not before dark, will he finally procure himself the necessaries.”² The nomad hunter lays nothing by for the next meal—unless he has more than he can manage to eat at the time; and having nothing laid by, he must hunt for his next meal as he did for his last. His savagery means improvidence, and his improvidence keeps him a savage.

The first steps of progress come when the hunter lets the small animal grow bigger with an eye to future eating, or when his women-folk scratch the ground with their forked sticks for the rudiments of a garden. Even then the progress is slow. When, for instance, the Hottentots acquired a rude agriculture, the disgusted missionaries found that at harvest time they ate, “almost night and day,” until the little they had was devoured.³ When the hunter emerges into the pastoral nomad, however, and keeps his meat alive

¹ David Livingstone, “Narrative of Expedition to the Zambese,” 1866, page 104.

² W. Junker, “Travels in Africa,” Eng. Trans. II., page 168. Cf. Carl Bücher, “Evolution of Industry” (Tr. Wickett), page 19.

³ Quoted by H. L. Roth, *Journal of Anthropological Institute*, 16 (1886), page 116. Cf. W. I. Thomas, “Source Book for Social Origins,” pages 98–112.

along with him in his flocks and herds, his sense of property and of the future develop side by side. Then the more cattle and goods he has, the harder it is to wander far; and the more he tends to settle, the more he must make sure that the local supply of food will not run out. So the scratching of the soil for a few chance roots develops into agriculture, and he ploughs and sows for a year ahead and eats of the fruits of last year's labor.

The future, then, far from being the unreality it seems to us, upon first glance at the problem, is rather the determining factor in developing an appreciation of the present. The imagination is no idle plaything for the children of the race, but the engine by which the paths of progress were opened up. But, at the same time, we must not forget that the imagination is built up out of experience, that it embodies the memories of the past, and does not exist except by reason of them. As we can not imagine what lies beyond the reach of our experience, the imagination only arranges the data of the past in new combinations. We are aware of the past, therefore, before we can imagine the future at all. There would be no stimulus to prepare for to-morrow's meal if one could forget the hunger of yesterday, and no knowledge of how to prepare without the experience of other such situations. In short, if imagination carves out for us the possibilities of advance, it does so only because it has been stirred to its task and given the material for its tools by the memory.

Memory and imagination, reaching out into past and future, furnish us with our appreciation of Time. But their interworking in this all-important enterprise depends upon one fundamental fact: the future must repeat some of the data of the past. If it did not, memory would bear no relation to present experiences and imagination could not even attain the vaguest outlines of surmise. Some of the data of experience must repeat themselves in order that mankind may be able to deal with the rest. Repetition, routine, enables us to calculate, and classify in terms of the old and known, the new phenomena which are set alongside them, as the moving present eternally varies our experiences. But since the data of life do not repeat themselves, but only those of its environment, the necessary framework for history must be furnished by the physical sciences, or their pre-scientific forerunners. In other words, the origins of the calendar precede the origins of chronology.

Strangely enough, although it lies in the prehistoric world, we know under what circumstances the calendar was first worked out. It began when men settled on the soil and began to farm it. The wandering savage may have a crude sense of time-periods; but, as we have seen above, his mind does not play on into the future in such a way as to modify his present by the calculation for its needs. Once

entered upon the agricultural stage, however, the conditions of life demand more thought and foresight, more planning and work for to-morrow and the day after. Henceforth, it is impossible to live entirely in the momentary present, to eat when hungry, chase where the game may lead, and in general follow the fortunes of nature, as was the case with the ancient hunter. There is surely a significance, hitherto unguessed, in the fact that Time and Space were appropriated jointly, and that the farmer who settled down in them, was the first to demand the measurement of each. His stretch of Time, like his stretch of field, lies out before him, marked by duties and rewards, needs and their satisfaction, from one horizon to the other. The horizons of Time are still confined to a season or two, as those of Space are limited to the village fields, except as the elders tell of adventures beyond the run of daily memory. But just as it is only the cleared fields, cultivated in yearly rotation within the circle of the waste, which are really the village property, whatever rights of chase or pasture there are in the dark woods beyond, so it is that narrow stretch of time which is covered by routine, and not the half-known past where myth and fancy make excursions, which is really taken over and made a working possession. Only recurring dates furnish a basis for measurement; and so the farmer's calendar is the first survey of Time as his fields are the first survey of Space.

Simple observations of nature supplied the first basis for the calendar.⁴ Naturally this varies according to land and climate. Where the monsoon blows from the southwest from May to November, and from the northeast from November to May, as in Nicobar, even low-grade savages have a loose sense of the year, or the half-year; which the changing moons can make still more definite. The floods of the Nile stimulated in Egypt its extraordinary progress in time-reckoning, as the cloudless skies of Babylonia called out its progress in astronomy. But where nature is less calculable, where the sky is largely overcast with clouds, storms are sudden, winds variable, harvests precarious—as in most of Europe—the reckoning

⁴ Cf. F. K. Ginzel, "Handbuch der Mathematischen und Technischen Chronologie" (1906), I., pages 58 ff. The progress of anthropology has opened up many a field of study in this realm. Already at the opening of the nineteenth century, Ludwig Ideler,—whose "Handbuch der Mathematischen und Technischen Chronologie" has been and still is unsurpassed as a manual of historical chronology—stated with wistful sense of the limitations of his texts (Vol. I., p. 64): "It would be interesting to be able to follow the history of any reckoning of Time from the first rude beginning through all its phases to its completion; ordinarily we know the time-reckoning of a people only in the most perfect form which it reached with them." Comparative study of similar cultures helps us in some degree to make good the lacunae. But, as the following pages show, the full history of the appropriation of Time can never be written except in the broadest outlines.

of calendar in terms of the weather, or of the common phenomena of nature is much more difficult. There are some world-old signs of the seasons,—lore which goes back to the ancient hunters before the days of agriculture, and is still in use. For instance, the flight or flocking of birds presaging winter was already an old sign in ancient Greece. Hesiod warns the Bœotian farmer to “take heed what time thou hearest the cry of the crane from the high clouds uttering her yearly cry, which bringeth the sign for (the late autumn) plowing and showeth forth the season of rainy weather, and biteth the heart of him that hath no oxen.”⁵

Similarly Jeremiah, in ancient Palestine, remarks⁶ that: “The stork in heaven knoweth her appointed time; and the turtle and the crane and the swallow observe the time of their coming.” As far back as the records of mankind can go, the return of the cuckoo and the “twittering swallow”⁷ have been the harbingers of spring. But however much the farmer might gain from observing the migration of birds, the habits of animals or plants, he could hardly have got beyond a few signs of weather-forecasting if he had not had more stable and more frequently recurring data to fall back upon. These were furnished by sun, moon, and stars.

As for the sun, while it furnished the divisions of day and night, it offered no ready multiple for their grouping. Its yearly circuit served for no more than the framework of the calendar; in a sense, it merely offered the cycle that needed calendaring. And yet, in those parts of the world where the seasons are marked off from each other with any degree of distinctness, a rough solar year could be appreciated without any detailed divisions by stellar or lunar periods. This is especially true outside the tropics, in the northern or southern temperate zones, where the farmer can grow but one crop of grain in the year, so that from a practical standpoint, he divides his time into two main seasons, winter and summer.⁸ This has always been, and still is, the essential basis of the farmer’s calendar in Europe and America. One may, as in Homer, divide the longer season into summer and harvest-time; but autumn and spring seem even to us now, like transition periods between the two fundamental seasons of heat and cold. Of the two again, the warm season is, of course, the all-important one. Indeed, winter seems rather like an interval between summers than a legitimate time in

⁵ “Works and Days,” Tr. A. W. Mair, 1908. Page 448.

⁶ VIII., 7.

⁷ Hesiod, *Ibid.*, page 486.

⁸ As in the old Norwegian year for example. One might also recall the poetic terseness of the text given in Genesis viii., 22, of the covenant of God with man after the flood: “While the earth remaineth, seed-time and harvest, and cold and heat, and summer and winter, and day and night shall not cease.”

itself. We should realize this even more if we had to face the weather in the scanty clothes of a primitive farmer. It is not a time for enterprise. One huddles close at home, and the pursuits of war as well as of peace are at a standstill. The literatures of the world, if not the almanacs, present this point of view in never-ending variety. From Hesiod's haunting picture of the cold north wind that "bloweth with chill breath" through the hide of the ox and "shaggy breasted" beasts, and drives "the horned and hornless creatures of the woods, with piteous chattering teeth to seek shelter in glens and caves," to the weary misery of a Walter von der Vogelweide, in the musty cold of a medieval castle, with his very wits frozen until the spring comes again, and the politely heroic rhetoric of a James Thomson, braving in hexameters the "oppressive gloom" of a season which is the very symbol of death,—throughout all the world's poetry there is but one feeling about winter.

The real beginning of the farmer's year, then, at least in a temperate climate, is not a winter solstice, in the very heart of this dead season, although that may be noted expectantly, with reference to the slowly lengthening days. The new year of the seasons naturally comes in the spring. The old Romans and the early Germans (at least the Franks) dated it from the month of March.⁹ Through most of the middle ages, and in England until 1752, the year began on the twenty-fifth of March—Annunciation Day. But whatever the exact date, whether according to the official calendar or not, the starting-point for the new year is when the first wild-flowers come again, and, in the joint phrase of Hesiod and Browning:

"The lark's on the wing,
The snail's on the thorn,"

if not March, then April, the "opening month" as the name itself tells, "when longen folk to go on pilgrimages" and all the world is astir with the new activities.

From March to November is the usable part of the solar year for war as well as for farming. The campaign can begin when winter is over; and the priests of Mars shake his spears to rouse him. In the Autumn they hang them up again in his temple. So the farmer's year, calendared in large by the seasons, is suited for the politics of the city state. In Greece, a country of commerce as well as farming, a more complicated system took its place; but in Rome the simple farmers of the Latin plain took over the Hesiodic calendar which Greece had grown out of, and kept it as the basis of their

⁹ Hence September, October, November, and December, the seventh, eighth, ninth and tenth months in the old Roman year.

year until the great reform of Julius Caesar,—at least so it seems from the fragmentary sources which have come down to us. Even in Greece, however, the vague old calendar of the seasons was not entirely lost. Thucydides chose to keep to it, instead of reckoning by the complicated official calendar, for the campaigns of the Peloponnesian war. Spring, summer, and autumn count together, in his history, as one long half of the year.

The solar year of the seasons was more, however, than a vague and more or less uncertain calendar based upon homely observations of weather forecasting.¹⁰ It was universally a stellar year as well. The moon, of course, did not fit it, since its periods shift annually with reference to the sun; but the motions of the stars more nearly coincide, and from earliest times their rising and setting furnished the most definite and surest dates for all the seasonal occupations.¹¹ The opening lines of Hesiod's "Days" mark out the two chief moments of the farmer's calendar, ploughing and sowing, by the rising and setting of the Pleiades; and that faintly glittering constellation has been a farmer's guide through many centuries.¹² Arcturus, "rising in his radiance at eventide" just sixty days after the winter solstice, was a more final sign of spring than the "twittering swallow," and the dog star was as much a symbol of summer as the sun itself. Vergil's farmer knows the "twelve constellations of the world" through which the sun passes in order that he "may foretell the storms in the doubtful sky, the day of harvest and the time of sowing," and when to risk one's self by sea, for "not in vain," he says, "do we watch the settings and risings of the constellations."¹³ All antique literature is full of such references to the connection of the stars with the seasons—a connection which religion was still further to enhance. In fact, so important was the observation of the stars, and so closely did their phases seem to fit the changes of the weather, that they seem to have furnished the basis of the practical farming calendar to both Greece and Rome, in spite of the rivalry which came from the beliefs about the moon.

(To be continued.)

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¹⁰ Cf. Vergil's "Georgics," Bk. I., for an insistence upon the importance of weather forecasting.

¹¹ Cf. Vergil's "Georgics," I., 230 ff. Columella, "De Re Rustica," Preface: "Let the farmer keep in mind the rising and setting of the stars, lest he begin his work when rains and winds are menacing and so his labor be in vain."

¹² Cf. Mair's note, pages 136 ff. Vergil, "Georgics," I., pages 205, 229; Columella, *loc. cit.*, II., page 80.

¹³ "Georgics," I., pages 250 ff.

JUSTICE AND PROGRESS¹

THE conception of justice is grounded in the compromise of conflicting ends. It arises in the midst of a many, out of the bendings and insistencies of more or less antagonistic wills; indeed, justice is the essential virtue and the proper excellence of a pluralistic world. Whether it be regarded as an equality of privileges or of rewards, or, with Plato, as a harmony of interests, justice in every case gets its meaning from adjustments of real or putative dissensions: the just judge is a mediator of mutually exclusive aims; the just man is one who is able to subject his own will to a reason which can see eye to eye with his fellows.

Thus, adjustment, harmonization, concordance, are the product and character of active justice; while its correlative passive quality is the virtue of obedience,—obedience to law, human or divine, the recognition and observance of rights. Each of these qualities, active adjustments and passive obedience, implies surrender or at least deviation of purpose and aim. They are qualities which presuppose a unity not completely unified, an organism not yet perfected, within which discontinuous interests actively quarrel or passively succumb.

Obviously, the conception of justice is founded in the recognition of conflicting interests, conflicting ends and aims. So also the adjudications in which justice finds its expression are adjudications of ends and aims. The whole idea falls within the domain of teleology, and clearly its interpretation must be teleological.

Yet here there enters in a nice distinction. The teleology of which justice is the form is not of the simple and elegant philosophical type; it does not represent a direct playing of the imperfect reality into the perfect pattern, of the hampered present into the competent future; it has no logical smoothness, no mathematical inevitability. Rather, its progressions are by jolts and hitches; its wisdoms are insecure; and its provisions are glamored with uncertainties. It is by no accident that the image of justice is blindfold; she is a fumbler in the dark after the true way.

Let us consider the material factors of her activity. First, there is the conflict of ends and aims; and this conflict is always *realistic*: it is the result of the actual encounter of definite projects in course of conscious execution; it is a matter of fact, and the factual agencies are concretely combative human wills, each with its purpose clear-cut and its resources of thought pragmatically applied to this purpose. Second, there is the adjudication of interests. But it is perfectly plain that this adjudication is and can be made upon no

¹ Read at the joint meeting of the American and the Western Philosophical Associations at the University of Chicago, Dec. 28, 1914.

such realistic grounds as condition the conflict. It is and must be *putative*, in character—that is, divorced from organic fact. The interests which the adjudication defines are not the conscious ends of the conscious actions of litigious men; they are judicially determined and judicially defined—that is, in deliberate disregard of pragmatism states of mind. The adjudication expresses no end that is sought, but one that *ought to be* sought; and hence it becomes an expression of *rights*, not of facts. It is this peculiar separation of the judicial from the pragmatism mind, of the intellect from the will, which gives to justice its character of uncertainty and divagation; ends are defined, but no impulses are created for their realization.

What, then, can be the sanction of these abstract rights which are proclaimed to be the governors of conduct and whose ministration is named justice? . . . Let us first recapitulate the tokens of a right. (a) A right is a prospect, not a status,—moral values lie not in possessions, but in uses. (b) It is a prospect which is (1) realized in no individual consciousness, and is, hence, ill-defined, or is (2) realized only in a judicial, third-party consciousness, and has, hence, no impulse to execution. (c) It is thus essentially theoretic; it can never be concrete (in an active world). (d) And it derives its theoretic intelligibility just from the fact of its detachment from action: its sanction is abstract reason.

The sanction of rights is reason; but we are obviously little advanced by such a conclusion unless we can show upon what foundations this reason establishes itself. Here it seems clear that we must draw our inferences, as we should in a science, from the usages of the reason involved. We must consider the custom of judicial thought and infer therefrom the logic of justice.

From such a point of view there may be discriminated three general maxims, or axioms, underlying this type of thought, and forming, as it were, the presuppositions of the logic sought for. I would state these axioms as follows:

1. Justicial reason must be teleological in form. That is, it must be concerned with final causes, and must be organized with reference to ends and aims recognized as authoritative by the judicial mind. This means that it must be temporal, historical, biological, if you like, in character; and conversely, it means that this reason can not rest upon structural analysis of society. The legal instinct for precedent is warranted by the temporal character of justice; and it is quite fantastical to suppose that sociology can ever replace history in the interpretation of law.

2. Justicial reason must define attainable ends. It is the common sense of mankind that a just adjudication of conflicting interests must substitute for the desires denied other realizable desires, commended in their stead. It is no portion of justice to be merely nugatory; wherever it denies present attainment, it must point the way to new possibility. I am aware that vengeful or punitive justice might be regarded as an exception to this rule, but only, I think, when a partial view is taken of the conflict involved—it is the irreconcilability of the wicked, rather than his wickedness, which is punished. Furthermore, the conception of justice as punitive disappears with the growth of enlightenment; and again it is not a little curious that society invariably feels that justice is better done where the criminal acquiesces, by confession or otherwise, in his own punishment. Certainly, in all that is fundamental, justice is conceived as a reformatory process, expurgating only in order better to create.

3. Justicial reason rests upon the assumption that all proper desire is for the good. It is not enough that judicial decisions define ends, and ends that are attainable; they must also be ends felt to be good. This is without prejudice as to the definition of the good; for I think it holds for all conceptions of value. Historically, and for the analysis of justice, such conceptions might be thrown into two general types, of which the first finds the essence of goodness in mortal life and human ends, while the second discovers it only in the desire of a will for which human conditions are transcended and mortal purposes are incidental. To the first type would belong the classical conception of an earthly *imperium* collectively created by mankind, as the supreme good; or, again, the humanitarian notion of individual happiness distributively apportioned; or, yet more modern, the Nietzschean notion of an evolutionary aristogony producing its supermen to be the bliss of a new idolatry. To the second type would belong all transcendental and cosmical justifications of the world, which are so often, as is Neo-Platonism and Buddhism and Christianity, pessimistic of merely mortal possibilities. But whatever the conception of goodness or whatever its philosophical emplacement it is still the key to all justification; whether the legislator and the judge be an archon of an earthly city or a divine ruler of the universe, he must raise his eyes to the pattern of the good in his administration of justice.

If we hold in one view these axioms of justicial reason—first, that it be temporal and teleological, second, that it define practicable ends, and third, that these ends be confessedly good,—there will emerge, I take it, the single philosophical assumption upon which they all rest. Law in human institutions is not an expression of belief in the uniformity of human nature, as natural law is an expression or belief

in the uniformity of physical nature; it is not an analysis of structure: rather, it is an expression of faith in the indefinite melioration of man's nature, in his progress toward perfection. Whether this progress be conceived as a betterment of states or an evolution of types, as the slow round of the wheel of existence or as a soul's parlous pilgrimage of the flesh, man is in every case a *viator*, a wayfarer, whose uncertain advance is guided by the beacon of the Good, whose errancies are punished by its obscuration. Rights exist only as special illuminations of goodness; laws only as guides to rectitude. And law and right and justice alike find their fundamental sanction, their *ultima ratio*, in the assumption of human progress.

The assumption of human progress is to the logic of morals what the assumption of the uniformity of nature is to the logic of science. Like the assumption of uniformity it is unprovable, and as in the case of the assumption of uniformity there are many facts of experience that appear to go against it. Both assumptions are, in fact, articles of faith; neither is obvious fact, and neither rests upon compelling reason. Nevertheless, each is the foundation for all the rationality that is possible in a whole department of human thought—the assumption of uniformity in the structural analysis of the world, the assumption of progress in its teleological analysis. Science and morals respectively are the births of these two great fiducial articles of thought.

But how, it may be asked, is such a remote generalization as faith in progress to be applied to the actual administration of justice in a concrete and contentious human society? The question is answered by the historic fact. Just as the natural sciences advance by the method of trial and error, hypothesis and approximation, with the assumption of uniformity as their lode-star, so morals, following the hypotheses of justicial reason, make their advances by the method of trial and error, governed by the constant assumption of progress. This is its procedure, as history shows; and while the meaning of good varies from age to age, so that it is now conceived as earthly and human, now as cosmical and divine, there is yet in the idea of progress a constant content represented by that buoyancy of life which still makes effort worth while.

Particular applications of justice are, as in the case of science, the consequence of particular hypotheses. Such hypotheses of progress, in severalty, are the rights which represent the ends and aims recognized by the judicial consciousness of mankind as tending toward the good. As I have said hitherto they are theoretic in character, for the reason that the practical needs of life blind to the ulterior bearings of conduct; reason, whether moral or scientific, feels the need of detachment from the concrete fact. It should be

said, too, that we are no more certain of the enduring quality of moral hypotheses than we are of that of scientific hypotheses; both are liable to absolute error; the enthusiastic rights of one generation may be Utopian fancies to the next.

Nevertheless, there is in actuality some objective validation of rights. Putatively, ends may be as many as there are individuals in the world; actually, no such anarchy is the case. It is means rather than ends that commonly vary, instrumental rather than final goods; all men desire Fortune, but the modes of wooing her are as many as there are men. If we ignore eccentricities in moral science as we do in physical science, the number of rights which men actually recognize will be found to be surprisingly few: a simple Declaration will sum them up for a group of centuries.

Laws and institutions are the reflections of such hypothetical rights in historical human societies. Human laws do not state procedures, as do natural laws, but purposes—such purposes as have become, as it were, phenomenally realized. Sometimes a law may outlast its realization, and survive as a form or rote which is socially dead; and this chance is no doubt the source of the legalist's reputation for dry-as-dust conservatism; but the essential function of the laws of a state is to *express the norm of progress*, as conceived in its day and generation.

Thus laws, which are the forms of the administration of justice, rest upon rights, which are the theoretic aims of justice; and law and right and justice are all subsumptions of that general faith in progress which is to moral science what faith in uniformity is to natural science. Corollary to this: there is a hierarchy of rights being defined by the course of history, which leads logically to an essential right as the theoretic end of progress; and similarly, there is a hierarchy of laws expressing the structure of social evolution, and leading (for the mind shrewd enough to discover it) to some law of progress as universal as is the law of gravitation. The business of the legal historian is to reconstruct the desires which underlie the laws of the past; the business of the legal philosopher is to divine the attainable good which will satisfy man's instinct for progress; while the business of the judge is to weigh contemporary hypotheses of right in the light of past desire and attainable good, and pronounce upon their moral truth or falsity.

Can we define justice in a more individual sense, as what is due to this man or that? Clearly, it is *the individual's equity in human progress*. The formula may seem vague, but I think that it should not be found unfruitful either as a principle of law or a maxim of legislation. At least it points out that justice belongs primarily to man's theoretic nature, that it must find its satisfactions, not in the

gratification of the passional or the appetitive, *soul*, but in that of the intellective. Only when life and life's situations are made reasonable to men is justice done.

Finally, if to what I have had to say it should be objected that I have added little to Plato's idea of justice, I would only reply that there is little to add.

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THE AVERSION TO ANOMALIES

IN a study I recently made of ceremonial as an expression of reluctance to meet change, on the one hand, and of impatience to get through with it, on the other, I was much impressed by the aversion shown by primitive peoples to those in their midst not readily classified. It is an analogous feeling, I take it, to that we ourselves entertain about persons of an uncertain age, of an equivocal sex aspect or character, persons whose family is unknown, or whose social position is doubtful. Unlabeled, unclassified, we find our acquaintances discomfiting. It is this very discomfiture which finds in more primitive circles collective expression. In them anomalies are shunned or segregated or disqualified. From this point of view I would like to review certain well-known primitive attitudes.

First, the attitude towards the uninitiated male. The time comes to almost every savage boy to be made a man and a member of his tribe, to be initiated. But there have been exceptions to this tribal order—perhaps the boy has been unable to pass the necessary ordeal, perhaps his family could not afford the expense. Whatever the reason for the irregularity, as uninitiated the youth or man is for the rest of his life more or less of an outcast. From the religious and political life of his group he is excluded. Sometimes no girl will marry him. Among the Bondeis of East Africa, his offspring are killed. Generally, whatever the age of the uninitiated, he is called or accounted a child. With the children and the women he may even have to spend his time. And he is ever a butt for the jeers and insults of the men to whom his lack of standing, his anomalous position, is hateful and despicable.

"You are a woman" is the taunt, it is said, that drives many a native youth in the Transvaal into the circumcision lodge. And when the Iroquois wished to degrade the Delawares for breaking a treaty they put them into women's skirts.¹ This feeling, the feeling

¹ Times and standards change. One hears no threat of dressing up the German war lords as women. Perhaps the English feminists would object.

that if a boy has not been made a man or a man has not manifested masculine traits he must be classified with the women, expresses itself very plainly in that notorious, but little understood institution, the "men-women" of some of the American Indian tribes. Take the Omahas, for example. Unless an Omaha lad is on his guard at the puberty fast, the Moon Being may trick him in the ceremonial into grasping the pack strap instead of the bow and arrows, and then the youth will talk and work and dress like a woman. Among us it is women who forget themselves who have been expected to change their habits, to dress like men. "Why don't you wear pants?" was the common nineteenth-century thrust in the United States against the woman thought to be unsexing herself. Out of one sex, should she not be forced into the other? A girl not quite a girl was a tomboy, mannish, or, in milder times, a bachelor-maid.

Derision or abuse was bestowed in the nineteenth century not only upon anomalies of sex, but upon anomalies in the relation of sex to sex. Unmarried at the age customary for marriage, a woman became an old maid, a discredited and discarded female, in the words and capitals of an earlier time, "the most Calamitous Creature in Nature."

The notoriety of the old maid was peculiar to the past century because in it she was so strikingly on the increase and because she had begun to struggle against the status made for her. In more primitive cultures she is a far rarer creature and she is altogether passive. Incident or expressions betraying contempt for her or dissatisfaction with her are therefore rare. I have assembled a few. Among the Blackfeet it was a good practical joke for the young men to lasso and overturn at night the tipi of an elderly spinster. Her tipi jerked away, she would be left sitting frightened and embarrassed by her exposure to public view. "When a woman does not wed a husband," held the Parsee, "it amounts to a sin worthy of death." That a girl who does not mate at nubility actually will die, is an East Central African belief. Such beliefs undoubtedly betray an aversion to celibacy. There are other ways, too, in which the social pressure to ensure marriage at an early age may operate. For example, the Hindu maiden whose father did not marry her off at nubility was told to wait three years and then choose a bridegroom for herself, an allowance of feminine independence so inconsistent with Hindu custom in general that it can be explained only as the compulsion of a great necessity.

What was this necessity? The cult of ancestors? But a Hindu girl did not marry for the sake of her ancestors or of her own ghost. The allegiance of her offspring was to their father and his ancestors.

It is more likely that the disrepute the Hindu man incurred by celibacy was due to the feeling that he had neglected his ancestral duties. And yet even in his case and far more in the girl's the pressure towards marriage may have been due to the general desire of the elders to see young people "settled," the same desire, I take it, that led Hebrews (long after they ceased worshiping their ancestors) to banish in disgrace the youth who did not marry when at twenty he was "numbered." And just so is it a "shame" to parents in the Banks' Islands to have their son unmarried. They even trap him into the ceremonial qualifying him to marry. Indeed young men as well as young women are in many a community made to marry. The anomaly of celibacy is too distasteful to be tolerated. Unprecluded, in men as in women celibacy may be ridiculed or even more drastically penalized. In the Islands of Torres Straits when a young man's beard becomes heavy, to escape ridicule he had to marry. In Corea, a bachelor, whatever his age, is treated as a child. To go to "parties," to have the right to express his opinion, to attain to anything like a respectable position in society, a Corean must marry. Not content with fining old bachelors, Plato would also deprive them "of all honour from juniors" and all obedience, and the right to chastise any one at all. At the risk of going on record as a coward and a bad citizen, the on-looker is to take sides against the old bachelor, whatever the quarrel—in a philosopher and statesman rather an extreme expression of resentment,² is it not?

Celibacy is an anomaly; but so is courtship, at least a courtship indefinite or dragged out. In the Islands of Torres Straits when a youth had been with a girl and had returned to his club-house, he was jeered at by the members and asked when the marriage was to occur. In illustration of our own feeling that a couple in love ought to get married I can not do better than refer to those inimitable scenes in "The Lost Tribes," where matrimony is urged upon Jamesy Casey and Onny Donovan by Father Roche. Speaking of the attachment between Jamesy and Onny, the priest's informant has added deprecatingly that it may not amount to very much. "Much or little," rejoins Father Roche, "the sooner they're married the better . . . we'll lay it before the two of them what it is they have to do."

But even within the regular bounds of marriage there are two more or less inevitably anomalous positions, that of the betrothed, that of the widowed; and many of the taboos upon fiancés, or upon widows and widowers, are the outcome, I venture to suggest, of the

² A resentment Plato, of course, rationalized, just as our pioneers in New England and in the West have justified the fines or taxes imposed upon their celibates.

disquietude caused by anomaly. Under a contract either not yet fulfilled or lapsing, associated closely with another person and yet not completely, the betrothed or the widowed is disconcerting company, and so he or, more particularly, she³ is marked off from others by the usual social contrivances for segregation, by dress or diet, by manners, separate quarters, by formal exclusion from social gatherings.

In addition to the ceremonial segregation of the betrothed or widowed we show our aversion to them in ways less sympathetic, in covert temper or in outbursts of passion. It is a bore, we grumble, to have engaged people around. Nor are the bereaved considered cheerful company. Their soul, say the Hupa Indians, is in a bad condition. Like other mourners, only in greater degree, the widowed are expected to suffer discomforts and make themselves ceremonially miserable. Any premature attempt to return to a normal life receives castigation. Were an Arunta widow to engage in any everyday matter, hunting for yams, for example, within a short time of her husband's death, and were she caught at it by her brother-in-law, she ran the risk of being speared. There is a story of how a Nishinam widow of California, going out to gather clover before the time allowed, was killed by her brother-in-law urged on by her father-in-law. But even conformist widows may be harshly treated. The Tolkotin widow of the Northwest Coast, for example, has to take orders from all the women and even the children of the village. While she weeds out her husband's grave with her bare fingers his relatives stand over and beat her. Consider, too, the lot of the Hindu widow. Ever unwelcome, ill omened, she is a mere household drudge, a despised and hateful personage.

As a rule the widower is in all particulars better off than the widow, but among the Papuans of Issoudan in New Guinea his lot of distress is unsurpassed. As soon as his wife dies, he is abused and beaten by her relatives, his house is pillaged, his gardens spoiled. He is forbidden to show himself in public, to traverse the village, to walk in the roads or paths. He may have nothing to do with anyone. He is completely ignored. "The condition of a widower," concludes the missionary narrator, "far from exciting pity or compassion, only serves to render him the object of horror or fear." If Father Guis had realized that it was because the unfortunate Issoudan widower was to begin with an object of horror and fear

³ One of numerous instances of restriction to one rôle or adhesion to it being more marked in women than in men.

that his position was made wretched, the hardheartedness of the Papuans would not have seemed so incredible.

Women are secluded not only at betrothal or in widowhood. They are also secluded during pregnancy. And, I think, for an analogous reason. A pregnant woman is another anomaly. She is neither wife nor mother. She is, therefore, a disturbing factor to her mate and to her neighbors. They don't care to be intimate with her or to have her around. Their disinclination or embarrassment are masked, of course, under all kinds of reasons why it is well for her to lead a lonely or a quiet life. The argument that sexual intercourse during pregnancy is injurious to the unborn child is advanced in all grades of culture. Nor, for the sake of the child, must its expectant mother run the risks of breaking the taboos laid upon her mingling in general society would entail. Take the case of a M'ganda woman. She may not drink from the vessel a man has drunk from, nor touch garments he has worn. It is unfortunate for her to catch sight of wild animals or feeble children. Were she to laugh at a lame person, her child, it was thought, would be born lame. Under all these circumstances the Baganda deem it wise to keep a pregnant woman within an enclosure and to limit the right of access to her. Better for her, as we say, "not to be going anywhere, just now." And yet at times the welfare or comfort of the community is directly urged as reason for the segregation of a woman and at times the sense of disquietude she induces is quite directly expressed. Left at large, she may bring misfortune, it is felt, and all kinds of bad luck. She may keep the sick from convalescing, hunters from killing their game, fields or gardens from bearing. To make the other side lose a ball game, the Yuchi Indians hold that all that is necessary is to have a pregnant woman encircle the goal.

Perhaps it would be more accurate to say of a pregnant woman not that she is an anomaly, but that she is in a merely temporarily anomalous position. But an unmarried woman who becomes pregnant is herself an anomaly. And, like the old maid, she has been in many societies the subject of very harsh treatment—even of outcasting or death. The fact that unchastity before marriage is winked at in many communities providing pregnancy does not result is one indication that it is the anomaly⁴ and not the mere violation of chastity that so greatly excites indignation.

An analogous kind of indignation is sometimes visited on the mother of twins. Sometimes, to be sure, the birth of twins is taken

⁴ The practical consequences of the anomaly to the family of the girl, the lessening of her marketable value, the cost of bringing up her fatherless child, are, of course, factors in the feeling of outrage she arouses.

as proof of adultery,⁵ but in some cases of the most drastic treatment this interpretation is not made. The killing of twins or of their mother or her social disgrace or ostracism may be explained, if explained at all, merely on the ground that the multiple birth is like birth among animals. Twins are not human, they are an anomaly, and so their mother and they themselves suffer for the dismay they provoke.

Not merely the treatment of the unmarried mother, but the whole history of illegitimacy, is an expression of the dismay and aversion caused by an anomaly. The illegitimate child is in an unclassified, anomalous position, and he is made to suffer for it. In the Elema district of New Guinea he is kept out of the secret society of Kovave. There was a time in China when he was not allowed to take the academic degrees. Among the Osage the child of parents not married ceremonially is not a "person." His parents have mated like animals. As a suitor he is highly negligible. No self-respecting family will accept him. When he is an old man he will not be honorably addressed as "good-man." Although the Todas are a polyandrous people and a people of very lax sex morals, legitimacy among them is strongly insisted upon. Unless the pregnancy ceremonial called *pursütpimi* and establishing juridical paternity has been performed, the child is disgraced for life. He belongs to no clan and he may never himself become the legal father of a child. Rivers, our authority on the Todas, does not describe for us the attitude of the expectant mother towards the *pursütpimi* ceremonial. No doubt it would have been very difficult for him, a man, to have got at the feeling of a Toda woman on the subject; but I can not refrain from surmising that she has something in common with the European or American girl who, pregnant, insists upon marrying that, as she quite simply and sincerely puts it, her child may have a father. She wants her child to be like others, normal, classified, with a place in society. And it is, I again surmise, primarily for the same reason that in many primitive communities men are forced to marry girls pregnant by them.

Other practises occur to us as open at least to similar interpretation. The rather discredited theory of the *couvade* as a means of establishing the fact of paternity becomes rehabilitated. The importance attaching to various forms of juridical paternity becomes less enigmatic. The *levirate*, in so far as it is the imputation of

⁵ But into collective disapprovals of adultery itself does not the dislike of anomalies enter, if only in a minor part? People are somewhat disturbed by having the associations they have made between two persons confused by an interloper; one rôle, too, is enough for one woman, sometimes even for one man.

offspring to a man dying childless, and the marriage of living persons to those dying celibate, both these customs⁶ might also bear interpretation as due to dislike of the incompleteness, of the anomaly through a failure of consummation. Ceremonial consummation, however belated, is a comfort.

Marriage with the dead is perhaps an act of consideration for the deceased, an establishment of his status. It is paralleled by the despatching of property or persons to guarantee his position in the Other World. But property is destroyed at funerals and persons immolated merely because, belonging to the deceased, they partake too much of him to be kept by the living. Their character of anomaly would be intolerable. When such things or persons are kept, they are set apart for a period, at any rate, and not appropriated. Then other funerary or mourning rites besides destruction and immolation or disuse or segregation express aversion to the anomalies created by death. Consider, not the survivors, but the ghosts themselves. Detached from the living and yet lingering about their old haunts, possessed of the same feelings and interests they had in life it is believed, and yet thwarted in expressing them, of all creatures ghosts, I take it, are the most anomalous and therefore the most disturbing and the most apprehended. Hence, as we might expect, ghostly company is never welcome. Haunting by ghosts is dreaded and ghosts are generally urged to seek a new habitat and take up their new status as quickly as possible. Nor is the pressure upon them confined to verbal suggestion or even to bribes. They are physically restrained, *i. e.*, the corpse they cling to is mutilated or tied or staked down, and they themselves are hoodwinked or browbeaten or terrorized.

Given the premises of primitive mourners, their conduct to the dead shows great cruelty. Their precautions against ghost-walking are meanly ingenious, their exorcisms brutal, their ways of disowning the clinging spirit are utterly heartless. But as we no longer believe, outside of limited circles, in lingering ghosts, the ethics of mourning, in so far at least as they relate to the dead, are of no moment. The ghost anomaly no longer concerns us. Other anomalies, however, are still with us, the anomalies of sex, of conjugality and of celibacy, of parentage; and "unsexed" men or women, divorcees, illegitimates, all still suffer in varying degree at our hands.

And quite properly, too, from time to time we are heard declaring, either they do not play the game at all or they or theirs have broken its rules. But supposing the game is changing, supposing the rules of society in question are based on an aversion of the

⁶ Undergoing initiation rites late in life is an analogous practise.

primitive mind many of us might find impossible to justify, a mere pet aversion, what then? Impossible not only to justify, but in many cases impossible to feel, what then? To make others suffer far an unjustifiable aversion, to make them suffer for an aversion no longer even felt, that, it may be, is as valid a definition of wanton cruelty as we can make.

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REVIEWS AND ABSTRACTS OF LITERATURE

Le Problème Mondial. Studies in International Politics. ALBERTO TORRES. Rio de Janeiro. 1913. Pp. 212.

Here are ten essays on war and peace which deserve attention. South Americans have long been famous for their researches in the field of international law, and Torres continues the traditions. He has written a book which would have been impossible in any European land. It is the work of a man who stands far from the chancelleries and free from their traditions and bad habits. It is a vision in long perspective; and, like all such visions, its background is huge—a sizable slice of the universe, in fact. Torres here attempts to interpret war and peace in the light of our whole range of knowledge about mankind and mankind's history. For instance, he attacks the old question: "Is war a primitive state of human nature, and does the struggle for existence (survival of the fittest) underlie all social life and determine social organization?" And he turns for evidence to anthropology. The results are, to put it mildly, startling. Torres concludes that the notion of a primordial *bellum omnium contra omnes* is sheer fancy, a poetic perversion either of Darwinism or else of conditions which exist in our own day as a result of politics. Primitive people, he finds, are not bellicose. They do not wage war, except in those rare cases when drought brings famine or a pestilence drives them from their home region and forces them to invade the lands of other tribes. How, then, does war arise? Generally through upper-class politics. Priest, king, and rich man, working insidiously in many ways, gradually build up the notion that the small tribal group has rights over against other groups; that it can persist and prosper only by enforcing these rights; and that it can enforce them only by an appeal to force.

"The philosophy of those who govern is not idealistic. It is not even realistic," says the author. "It is merely a conventional philosophy. Government . . . is carried on by average ideas." By this last phrase, the author seems to mean no genuine ideas at all. An "average idea" is one which the ruler reaches by some simple process of striking an arithmetical middle between real ideas. In short, it is a blend of irrational compromises and pure fictions of a popular sort. It is exemplified by such notions as "race purity," "race superiority," "the high destiny of the race," and so on. The worst of all these is the notion of war. It is

accepted, says Torres, as the only apparent reality. "But it is a fiction which is endurable to souls who would be terrified if they had to reason, step by step, before doing anything."

There can be only one outcome to the modern war mania, we read. "The military phase of civilization will end with a great militaristic crisis in Germany. This fatality might be prevented or mitigated by other world powers. . . . Germany believes she has the right to grow. If the powers grant this and also see the necessity of ending the long period of military agitation, they may bring to pass a world-peace by giving Germany territories in uncivilized lands." This, by the way, was written two years before the outbreak of the world-war.

The most interesting suggestion in the volume is the author's plan for bringing the war epoch to an end. Convinced that the whole political system, monarchical and republican alike, constantly tends to deal with vast social problems in terms of "average ideas" and fiction, Torres would have people cease hoping for deliverance from war through government agency. He looks forward to a great international committee of unofficial experts who will study business and political conditions which make for war and will give the widest publicity to their findings. In elaborating this idea, Torres scores a point which the peace-workers of North America may well note. He doubts the efficiency of devices like the Hague Tribunal in preventing war. The trouble with them is twofold: in the first place, tribunals are judicial and must decide cases according to judicial principles, whereas the causes of most wars are irrational and incapable of adjudication under any code of procedure; and, secondly, cases between nations would inevitably be referred to such tribunals too late, inasmuch as the causes of war and the forces which organize nations for it always are at work shaping events long before, under existing political and diplomatic methods, the grievances of nations are allowed to be published abroad.

Señor Torres's book is most ambitious. In this lies its chief defect. Had it been twice as long and twice as thorough, it would have gained immensely in convincing power. Compact and sketchy as it is, though, it affords stimulating reading.

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Antike Schriften über Seelenheilung und Seelenleitung auf ihre Quellen untersucht. PAUL RABOW. I. *Die Therapie des Zorns.* Leipzig: B. G. Teubner, 1914. Pp. 198.

Ancient ethical philosophy passed through various stages. Before the advent of Socrates we are scarcely entitled to speak of ethics: morals existed, but such teaching of morals as there was had practical ends in view. As such it had failed to establish fundamental principles and hence was uncertain and contradictory. Socrates, too, was intensely practical in aim, but felt the need of removing the absurd rubbish of the too practical Sophists and arriving at clear and well-defined concepts as a basis for knowledge and conduct. Himself a missionary, he left no writings,

but inspired many others to write, chiefly imbued with his scientific interest. However, fired with the spirit of the reformer, Plato, the greatest of his disciples, always felt that error was the greatest foe to righteousness, and the appeal of his works is always primarily to the intellect, though he was too wise a teacher to neglect the imagination and the emotions or to fail to point the better way. What Plato's genius accomplished in a single dialogue by the dramatic form, which enabled him to stimulate the intellect without detriment to the moral and emotional appeal, the more prosaic and less gifted Aristotle found it necessary to attempt by dividing his subjects. Hence he produced two sorts of writings, the first popular in style and practical in aim, the second esoteric in style and addressed almost solely to the reason.

After the time of Aristotle, philosophy continued indeed to flourish even on the purely intellectual plane, but it had less heart for the life of pure reason; its highest aims were practical, concerned with the problems of conduct, and gradually it became more and more engrossed in the effort to find the spiritual comforts which spring from the pure heart and the satisfactions to be had only in a chastened life. This is the field of the preacher and the popular moralist, both touched with the zeal for the nurture and cure of souls. Later antiquity abounds in works, for the most part fragmentary, belonging to this class, and the last quarter-century has called forth innumerable efforts to piece together the tessaræ and reproduce the mosaic patterns which once challenged the admirations and fortified the hearts of men in the last centuries before the triumph of Christianity. Here and there we still possess entire treatises; but unluckily they are themselves not the original, but structures built up of fragments once belonging to nobler edifices. Here the historical student is forced to tear down and rebuild the old, and he can do so only after the most painstaking study of the fragments with a liberal use of imagination and conjecture.

In the present treatise Dr. Rabbow has thus dissected Seneca's treatise "De Ira" and Plutarch's *Περὶ ἀπογνώσις* together with parts of Cicero's "Tusculan Disputations" in the effort to assign their concepts and arguments to their respective authors. He is concerned with the means proposed for the prevention and cure of anger or wrath, and contributes not a little to the recovery in outline of the doctrines of Posidonius and of Antiochus. It would be saying too much to assert that his argumentation is everywhere convincing, for in such matters absolute certainty is rarely attainable; but few will question the conclusions that in good part he has made out a probable case and that in general his treatise belongs to the better class of *Quellenforschung*. It is to be hoped that the ungodly wrath stirred by the European Armageddon may be cured and the author permitted to prosecute his peaceful and enlightening studies, of which this is a first installment.

W. A. HEIDEL.

A First Course in Philosophy. JOHN E. RUSSELL. New York: Henry Holt and Company. 1913. Pp. 295.

This is an unpretentious little work, but a serviceable one. It is, as the author states, "the outgrowth of more than twenty years of teaching;" and this remark is a good commentary on the nature of the work. We have heard of Professor Russell's stimulating teaching from some of his former pupils; it was not a matter of surprise, therefore, to find that the work fulfils its aim, that is, "to meet the wants of students who are young in the study of philosophy." The style, almost conversational, one might say, goes to show that the book is the result of teaching and that its aim is to serve as a teachable compendium in introductory courses in philosophy.

As for the contents of the book, it may be at once noticed that it differs but little from the typical "introduction to philosophy." We find the divisions and subdivisions characteristic of first books in philosophy. An introduction, with a discussion of the relation of philosophy and science, and of philosophy and religion: part first, "The Problem of Reality"; part second, "Epistemology"; part third, "The Problem of Conduct";—such is, in outline, the plan of the book. The author has been content to sketch only the larger problems, and so avoids the danger of crowding too many subsidiary points into a volume of introductory nature. The consequent over-simplification is, of course, unavoidable in books of this type.

There is, on the whole, little to distinguish this book from most works of the kind. The doctrinal traditions are treated in the familiar manner: idealism is balanced against realism, monism against pluralism, and so on. As a sign of the times, however, it is interesting to note that pragmatism occupies a goodly share of the book. The reviewer's reaction to this "First Course in Philosophy" is similar to his reaction to the great majority of books of this kind. It appears that the purposes and limitations of first books in philosophy render inevitable the arrangement of the material in a set of mutually opposed and contrasted doctrines. Of course, such oppositions are matters of history; but the introductions to philosophy solidify the more fluid contrarities of history into a bristling array of pros and cons. The beginner in philosophy will not fail to note that for every "pro" there is apparently an equally convincing "con." And mediating doctrines will seem suspicious because they seek to reconcile what must seem, from the very form of presentation, so patently irreconcilable. The student is likely to feel that he must either make a choice between these "either-ors," or feel depressed to discover that his novitiate in philosophy ends with a disheartening residual array of irreconcilable oppositions. What shall it be—monism or pluralism? Or "monistic-pluralism" or "pluralistic-monism"? It is not surprising that to so many beginners philosophy appears artificial.

There is, of course, no denying that certain attitudes towards problems continually recur, that problems persist, and that the solutions offered generally turn out to be variations on the old themes that stood contrasted

centuries ago. But the "either-ors" of philosophy somehow do not appear so formidable when scrutinized in the light of the history whose product they are; yet there seems to be inherent in the nature of first books in philosophy the necessity of presenting philosophical doctrine as a sequence of hard-and-fast, mutually contradictory solutions of problems. And for the pupil, the issue is apt to be predetermined by the exposition of alternatives. The study of philosophy may appear to him to be a search for the best solutions that history affords, rather than a search for the problems to be solved. It is to Professor Russell's credit that, in so far as was possible, he has striven to obviate such unfortunate results by occasional excursions into history, by the stimulus to independent thinking that he has tried to give by a colloquial and somewhat popular style of treatment, and by refraining from closing the debate.

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JOURNALS AND NEW BOOKS

REVUE PHILOSOPHIQUE. September, 1914, *Essai sur l'interprétation sociologique des phénomènes conscients* (first article: pp. 225-250): D. DRAGHICESCO. - ". . . psychology, in so far as it is a science of the *individual*, is impossible, or is confounded more and more with biography." The study of the superior psychical phenomena belongs to sociology. The author's thesis is that "consciousness represents the inter-individual relations organized in society." Reflective consciousness is a social phenomenon; its genesis is to be sought primarily in suffering, in the inhibition of the unrestrained manifestations of the instincts; the chief rôle in this process is that of primitive religion, with its infliction of pain through ritualistic flagellation, its opposition to and regulation of instinct, thus disengaging consciousness from the milieu of physiological life. *La pensée russe présente-t-elle des tendances originales en philosophie* (pp. 250-284): N. SELBER. - Final article, concluding with the reiteration that the point of departure of Russian philosophy is characteristically social, moral, and tinged with mysticism. *Expliquer et comprendre* (pp. 285-295): RENÉ PAUCOT - Science enables us to comprehend phenomena only in the sense that it enables us to think together many facts, to connect them in the mind without confusing them. *Analyses et comptes rendus*. Dr. Gustave le Bon, *La vie des vérités*: A. PENJON. F. Pillon, *Année philosophique*: JULES DELVAILLE.

REVUE PHILOSOPHIQUE. October, 1914. *Essai sur l'interprétation sociologique des phénomènes conscients* (pp. 305-44: concluding article): D. DRAGHICESCO. - "The special life of the conscious 'me,' of the reflective personality" is attributable to two great forces, "religion and politico-economic activity." The root of the politico-economic life lies in war and servitude. The suffering caused by these and the resultant unity and co-

ordination of the social life fuse with the religious force in further calling forth and developing consciousness and personality. ". . . the hundred-fold millenary action of the collective life on man has been a kind of constant mortification of the human body, an unending torture of the individual zoological life; and it is these repeated and systematic brutalities that, while rendering man docile, have provoked the considerable enlargement of the brain and the appearance and exceptional development of the life of spirit." *Revue critique*. Walther Schmied Kowsarzik, *Umriss einer neuen analytischen Psychologie und ihr Verhältniss zur empirischen Psychologie*: J. BOURJADE. *Analyses et comptes rendus*. Dr. Ch. Blondel, *La conscience morbide*: P. BERROD. A. Cartault, *L'Intellectuel*: A. JOUSSAIN. Jean Finot, *Progrès et Bonheur*: ARTHUR BAUER. *Notices bibliographiques. Revue des périodiques*.

Schuster, Edgar. *Eugenics*. Baltimore: Warwick and York. Pp. 264. 40 cents.

Stern, William. *The Psychological Methods of Testing Intelligence*. Tr. by Guy Montrose Whipple. Baltimore: Warwick and York. 1914. Pp. x + 160. \$1.25.

NOTES AND NEWS

At a meeting of the Aristotelian Society on March 1, Mr. Albert A. Cock read a paper on "The 'Esthetic' of Benedetto Croce." "Croce's theory rests on a differentiation between (a) intuitive knowledge, obtained through the imagination of the individual, and productive of images, and (b) logical knowledge of universals, obtained through the intellect, and productive of concepts. Every intuition is also expression. As expression, intuition is form distinguished from psychic material which is felt and suffered. On this distinction is based Croce's theory of art. The beautiful is defined as the value of expression. Art belongs not to the world, but to the superworld—not to time, but to eternity. It is 'the dream of the life of knowledge'; its complement is the concept, the judgment. In his criticism of the theory Mr. Cock said that its chief difficulty as a theory of art lay in its failure to supply an intelligible and valid criterion of beauty. Beauty is nothing more than expression, and unsuccessful expression is not expression. Consequently Croce can offer no satisfactory theory of the ugly."—*Athenaeum*.

ON April 13, Mrs. Christine Ladd-Franklin read before the officers and students of the department of philosophy at Columbia University a paper entitled "The Non-Existence of Existence." A discussion of the paper followed.

DR. GRACE NEAL DOLSON, assistant professor of philosophy at Smith College, has been advanced to the grade of associate professor.

ON March 15, Professor Charles Gray Shaw lectured at New York University on "The War and Culture."

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PSYCHOLOGY AND SCIENTIFIC METHODS

THE POSTULATES OF DEDUCTIVE LOGIC

ONE of the greatest dangers to cogency in thinking is the intrusion of irrelevant ideas; and one of the great advantages of mathematical notation has been that it helps to exclude irrelevancies. This advantage is much increased, now that mathematical scholars are generally aware that their symbols mean no more than the postulates and definitions make them mean. For the common-sense associations which formerly did so much to introduce unwarranted assumptions into the reasoning, especially in geometry and mechanics, are now effectually guarded against, although they still serve their old function of suggesting possible combinations.

There are two means by which the meaning of symbols can be fixed. One is definition in terms of symbols whose meaning is already fixed. The other is the exhibition of a set of standard formulæ in which the symbols in question occur, and which constitute the authority for their use on all occasions. Both methods are used in our dictionaries in fixing the meaning of the words of the various languages. It is obvious that in the case of words the latter method is the fundamental one. It is common usage that gives words their meanings, and the definitions have to be framed accordingly.

These same methods are followed in mathematics; but the endeavor is made to give the definitions and standard formulæ such exactness and clarity that no error in their application can occur except by reason of inattention or forgetfulness; and, furthermore, the two methods are treated as mutually exclusive alternatives. Definition is used wherever possible; and only where definition can not be used is resort made to a set of standard formulæ—the postulates.

But the usage of words in ordinary language is not simply an employment of words in various combinations with each other. It is the employment of them in appropriate situations. It is from the external connection of words with things and feelings that, in the last resort, all the meaning of words is derived. Now in mathematical procedure all such external connections are *as far as possible* avoided. It is the standard usage of the symbols in connection with each other that is expected to guide all further usage.

The various branches of mathematics may be viewed as a series of deductive systems, presupposing one another in a certain definite order, and with each later system characterized by a new set of postulates in which new "indefinables" occur. Thus geometry, while presupposing arithmetic, may be viewed as requiring for its establishment ideas and assumptions that are foreign to arithmetic. This conception of geometry was, in fact, universal until recently, and it is still very frequently adopted. It is now, however, generally recognized that this conception is not necessary—that geometry may be so universalized that it contains no radically new ideas or principles at all, and thus takes its place as a part of pure mathematics, resting upon no other basis than the postulates of deductive logic.

Now in the organization of deductive logic itself as a deductive science, it is such sciences as geometry that have served as the pattern. Perhaps, therefore, it may help us to a better understanding of the postulates of deductive logic, to consider briefly what has recently been made clear with regard to the logical status of the postulates of geometry.

That these postulates are not asserted propositions has long been recognized. The old controversy over the "parallel-axiom" of Euclidean geometry is responsible for that. The "axiom" might be assumed, or an alternative might be assumed, and geometry went on its way quite merrily in either case. It therefore came to rank as an assumption with whose truth or falsity geometry was not concerned; but it still remained open to question whether it was indeed true or false. For a time, indeed, the case of this "axiom" was regarded as exceptional. But it was finally seen that this was not so—that any of the "axioms" might be altered or replaced, and a geometry of some sort still remain. A further step was involved in the recognition of the possibility of diverse interpretations of the assumptions, some of which might be true and others false. Thus the "parallel-axiom," whether it be true or false in its common application to physical space, is certainly true in its analogous application to the "space" whose "points" are ordered sets of real numbers. The science, meanwhile, remained perfectly indifferent to these different interpretations. It concerned itself only with deducing the consequences of the postulates in their symbolic form. The postulates were no longer capable of truth or falsehood. They were conventions subject to the arbitrary choice of the mathematicians.

This view, however, was found to be short-sighted. In the first place, such a postulate as the "parallel-axiom," even though it be expressed in peculiar symbols that are not found in ordinary dictionaries, is not thereby wholly cut off from those external connec-

tions which, as has been said, give words their meanings. A set of geometrical postulates need contain (or presuppose) only two indefinables that are peculiar to the subject: say, *point* and *between*. All the other indefinables are such as occur in all intelligent discourse. These others, in the formal statement of the postulates, may be expressed in common words, or new symbols may be invented for them; but if new symbols are used they must first be explained in ordinary language. The use of new symbols to express these ideas could only have the advantages of brevity and (perhaps) of unambiguity. Thus, even anterior to any particular interpretation, the postulates are not wholly unintelligible. Suppose, for example, we read: "If p , q , and r be each any \mathcal{G} , and if $p \mathcal{L}$ the collection q and r , then q does not \mathcal{L} the collection p and r ." Now this may be the first time we have ever seen the symbols \mathcal{G} and \mathcal{L} , and we may not have the faintest notion how to pronounce them. But we know the meaning of all the words and punctuation marks that occur; we know that \mathcal{G} is a class-name and that \mathcal{L} stands for some relation; and we know that p , like q and r , is intended to denote the same \mathcal{G} throughout. If this be one of a set of postulates, we observe further that these same symbols appear in the other postulates, and that the only connection in which \mathcal{G} 's are mentioned is either their mere existence or their occurring (or not occurring) in the relation \mathcal{L} .

Hence, instead of the postulates being either (1) propositions asserted to be true; or (2) assumptions, which may be true or false, but which are made in disregard of their actual truth or falsity; or (3) mere formulæ, which are meaningless till some particular interpretation is given them; they are more properly to be regarded (4) as the perfectly intelligible description of a certain class of relations, or, what amounts to the same thing, of the entities which enter into this class of relations. For example, the above postulate might be expressed: "Let us consider the class of relations which a single term may bear to a pair of terms, and which are asymmetrical as respects the single term and either member of the pair." The remaining postulates would give further particulars of the description; or, by providing for the existence of terms between which such relations obtain, they would by implication assert that all the various parts of the description are consistent with one another. In present-day practise, however, the consistency of the description is always proved by pointing to some actual exemplification; and the example is always, in the last resort, some combination of numbers.

But the complete description of a class of relations is its definition. Hence, in the case of geometry, the "indefinables" are not absolutely such. They are simply assumed as undefinable for the science. And the set of postulates, by means of which the employ-

ment of the "indefinables" is fixed, reduces upon examination to an instance of the other mode of fixing the employment of symbols.

How is it, then, with the postulates of the fundamental branch, or rather trunk, of mathematics—deductive logic? Their difference from geometrical postulates appears in the fact that if uninterpreted symbols are substituted for the logical terms, nothing but rows of symbols remains. These can not, then, be translated into a general description of something or other, for there is nothing to take hold of upon which a translation might be founded.

Can they then be treated as a set of symbolic formulæ awaiting interpretation? Let us see.

Imagine a sheet of paper covered with a variety of marks which are repeated in different combinations in different lines. Imagine, further, a set of directions setting forth the conditions under which anyone may, if he please, write similar lines of marks on an indefinite number of other sheets of paper. These directions must be extraordinarily explicit, no possible room for misunderstanding being left open; and they must, of course, be expressed in intelligible language. By this I do not mean that they will contain nothing but words; for they must contain the marks the employment of which they direct. The first direction will be that nothing shall be set down except as shall be thereafter distinctly permitted; all the remaining directions will express positive conditions.

Under these circumstances you might proceed to cover a considerable number of blank sheets with these (to you) meaningless marks. You might develop much cleverness in seeing possible combinations; and you might thus devise new directions leading by short-cuts to results which the original directions invariably authorized. The devising of these short-cuts would perhaps take up a very large part of your efforts; and you might fill up many note-books with your record of them, and your proofs that they did indeed involve no transgression of the original directions. These proofs you would conduct as your mother-wit enabled you; and if you had ever studied logic you would doubtless check them up by such logical rules as you were acquainted with.

You might do all this without having the faintest idea what the marks meant or whether they meant anything at all. And then it might accidentally occur to you—I do not know how you could set about systematically to make such a discovery—or some one who already knew might call your attention to the fact, that those original rows of marks might be given a meaning: that they might be understood to indicate certain principles of logic; and that the directions laid down for making new marks would then be equivalent to a second set of logical principles, according to which inferences might be drawn from the

first set. At the same time you would bethink yourself that, for all you knew, the marks might be susceptible of an infinite number of other interpretations, and that the directions for making new marks might have to be variously interpreted accordingly.

This, so far as I know, would be a perfectly feasible enterprise. The directions for making new marks would have to cover in some way: (1) inference of the form, " p and ' p implies q ' permit us to write q "; (2) substitution of variables for other variables whose range includes theirs (as, for example, " p is false" for p); (3) the use of parentheses or their equivalent, and the occasional dropping of parentheses; (4) the arbitrary framing of definitions and the substitution of either side of a definition for the other.

Such an enterprise would not only be feasible, but it might have a certain utility. For there would be a minimum of distraction by irrelevant associations, and hence a minimum danger of being led into unwarranted assumptions. The pages upon pages of rows of marks that were written would not have to be changed by an iota when the interpretation was made. It must be confessed that it would probably take a phenomenal intellect to get very far in the development, when all help from common experience was to this extent eliminated; and that such an intellect might very likely be better occupied.

But whatever utility such a treatment might have, we must not be blinded to the fact that the whole procedure would be *absolutely nonsensical* until the interpretation of the original marks was given; and that this interpretation is, from the standpoint of the manipulator of the marks, an *absolute accident*—as accidental as the interpretation of a well-fought game of chess as an argument for the immortality of the soul. And meanwhile the very manipulation of the marks themselves rests, of course, on the use of common speech in the directions; so that the natural imperfection of language, which has been pitchforked out of the rows of marks, flies back through this window.

It has been said that the enterprise of working out a mathematical logic without knowing what it meant, would require a far greater intellect than is likely ever to be applied to it. This circumstance, however, need not detract from a certain value which the very conception of such an enterprise may have for us. We may use this conception in the critical examination of the postulates of any proposed system of mathematical logic, asking ourselves whether they would equally suffice if abstraction were made from their significance; that is to say, whether certain of the postulates can be regarded as a set of meaningless marks, and the remaining postulates as a full set of directions for the writing of additional marks.

Thus the postulates of deductive logic stand upon a very different footing from the postulates of geometry. To geometry the interpretation of its primitive symbols is a matter of indifference—except that the possibility of at least one interpretation is necessary in order to ensure the mutual compatibility of the postulates. For deductive logic the interpretation of the symbols is logically prior to all else, for without that all else is nonsense.

Accordingly, it is impossible for deductive logic to cut itself entirely loose from the external connections of common language and its consequent unclarity. It should, indeed, be the aim of the logician to reduce this unclarity to the practicable minimum by the methods of the dictionary, troubling himself not at all by reason of the logical circles into which he is thus led. Imperfect as the explanation may necessarily be, it is an essential propædeutic to the system of logic—not, as some writers would have it, a mere concession to practical expediency. At the same time it is not to be forgotten that the postulates themselves, when once some vague meaning has been given to their terms, are a most potent means to the further clarification of their meaning.

I wish now to discuss two of the postulates, which, in certain recent systems of deductive logic, stand out prominently by virtue of the fact that they are expressed in words and not in quasi-mathematical symbols; and I wish particularly to examine the reasons that are given for the use of words. The two postulates are the *principle of deduction* and the *principle of substitution*.

M. Couturat, in the syllabus of logic which he has contributed to the "Encyclopedia of the Philosophical Sciences," states the former principle as follows: "If A implies B , and if A is true, then B is true (and we can affirm this independently)." And he adds: "We should be tempted to express this principle by the formula:

$$(A < B)(A=1) < (B=1),$$

but this formula is again an implication from which we can not extract the thesis ($B=1$) in order to affirm it separately except in virtue of this principle itself. And here we have a striking proof of the necessary limitation of symbolism when it is a question of formulating principles" (Vol. I, p. 143). To this I would reply:

(1) The principle of deduction, as M. Couturat has himself stated it in words, is itself an implication, from which the thesis " B is true (and we can affirm this independently)" remains to be "extracted"; and this, according to M. Couturat's own words, can only be done "in virtue of this principle itself." It may be added that either in the case of the symbolic formula or in that of the verbal statement, it would be well to leave the thesis unextracted; for, standing by itself, it is in general untrue.

(2) The symbolic formula, which M. Couturat suggests only to withdraw it, is in fact precisely equivalent to his verbal statement of the principle of deduction. The symbol " $<$ " means "implies," or "if . . . then"; the symbolic expression " $= 1$ " means "is true"; and the placing of the two parentheses side by side means "and." Accordingly, the whole formula reads: "If A implies B , and A is true, then B is true." The only addition in M. Couturat's verbal statement of the principle is the phrase, "and we can affirm this independently." But even this is no real addition (as M. Couturat covertly recognizes by placing it in parentheses¹); for the stating of propositions "independently" is our common mode of stating them as true.

In "Principia Mathematica" by Messrs. Whitehead and Russell, the principle of deduction is first stated with respect to what are there called "elementary propositions." They write: "*1.1 Anything implied by a true elementary proposition is true. Pp." (This last is the symbol for "primitive proposition.") And they comment as follows: "The above principle will be extended in *9 to propositions which are not elementary. It is not the same as 'if p is true, then if p implies q , q is true.' This is a true proposition, but it holds equally when p is not true and when p does not imply q . It does not, like the principle we are concerned with, enable us to assert q simply, without any hypothesis. We can not express the principle symbolically, partly because any symbolism in which p is variable only gives the *hypothesis* that p is true, not the *fact* that it is true" (p. 99).

Now (1) the principle of deduction, as these writers enunciate it, is, in fact, precisely the same as the proposition from which they attempt to distinguish it. In the first place, the transformation from the one form to the other is simple and obvious. Let us take an analogous case: "Any son of a good man is good." This means the same as: "If y is a son of a good man, y is good." And this in turn means the same as: "If x is a good man, then if y is a son of x , y is good."

In the second place, the alleged difference between the two statements is illusory. When our authors say of the second that "it holds good equally when p is not true and when p does not imply q ,"

¹ I have not seen the original French of M. Couturat's article, and the translator of this volume is not altogether trustworthy. But I have before me the statement of the principle of deduction in his "Les Principes des Mathématiques," and this may be literally rendered as follows: "If a true implication $p \supset q$ is given, and if the hypothesis p is true, then the thesis q is true also, so that we may affirm it independently." Here the "so that" (*de sorte que*), instead of "and," more explicitly recognizes that the concluding phrase makes no real addition to the principle.

this seems to mark a difference, especially since p and q do not occur in the first. But, as a matter of fact, no matter what p and q may mean, and no matter what relation is fancied between them, the first statement holds. It holds whether or not pigs have wings, and whether or not the Bishop of Barchester is henpecked. In other words, being true it is true—exactly like the second.

In the third place, the principle of deduction can in the one form, no more and no less than in the other form, “enable us to assert q simply without any hypothesis.” Neither form will enable us to assert q by being used as a general formula in which to substitute particular values. Consider the propositions, “This is red,” and “That is blue”; and suppose the first is true and implies the second. Then let the attempt be made to substitute these values in the principle of deduction. In the first form of the principle, substitution can not be made directly, because in it the variables are hidden under class-names. It must be put into some such form as the second, before substitution is possible. And then, when the substitution is made, we have merely: “If this is red, then, if ‘This is red’ implies ‘That is blue,’ that is blue.” But in this proposition the truth of “This is red,” and of the implication of “That is blue” by “This is red,” is no longer asserted: it is only considered as a possibility. Hence, also, the truth of “That is blue” is not asserted.

On the other hand, of course, either form of the principle will “enable us to assert q simply,” when it is used as one premise of a deductive argument, conducted according to the principles which govern such reasoning. We may, for example, argue: “Anything implied by a true elementary proposition is true. ‘This is red’ is a true elementary proposition. Therefore anything implied by ‘This is red’ is true. But ‘That is blue’ is implied by ‘This is red.’ Therefore ‘That is blue’ is true.” But this is far from our authors’ intention.

(2) The statement that the principle of deduction can not be stated in symbols is, accordingly, false. In the symbolism employed by our authors, it reads:

$$\vdash : p \supset : p \supset q . \supset . q$$

which is, indeed, the direct translation of the second form of the principle considered above. (The first symbol is the sign of “assertion”; \supset means “implies”; and the dots are used instead of parentheses.) Their remark, that “any symbolism in which p is variable only gives the hypothesis that p is true, not the fact that it is true,” is simply beside the point. For in the principle of deduction we do not expect to find asserted the truth of any other proposition than the principle itself.

I conclude, therefore, that the reasons which M. Couturat and the authors of "Principia Mathematica" have given for the use of words in the statement of this logical postulate are unsound. The fact, nevertheless, remains that in building up their systems they have found themselves compelled to state it in this way—even though they had stated it in symbols elsewhere—and it is this fact that has led these acute thinkers into giving bad reasons for it.

The real reason for the fact, I believe, lies in the considerations which were presented in the first part of this paper. When once the fundamental premises of a system of logic have been set forth in symbolic form, the whole further construction of the system is carried through exactly as if the symbols had no meaning at all, or as if their logical meaning were only one of an infinite number of possible meanings. There must, therefore, be given a set of rules for the manipulation of the symbols; and these must be stated in intelligible language. For the authors whom we have been studying, the principle of deduction is one such rule.² When, however, the meaning of the symbols is recalled, the process of manipulating them is seen to be a process of deductive inference, and the rules of the process are seen to be principles of inference—just such principles as the whole system of logic is made up of.

So long, then, as the meaning of the symbols is borne in mind, is there any point in the separate statement of certain of the principles in words? I think not.

In speaking of the rules for the manipulation of symbols, attention was drawn to the obvious fact that in the use of these rules a man would have to reason. This necessity is not the least bit lessened when the rules are interpreted as principles of inference. No amount of knowledge of logic can enable us to dispense with thinking, though it may enable us to economize it. To be sure, this thinking, so long as it is correct, is such thinking as is in accordance with the principles of inference. But in order to justify it by those principles, *more* thinking must be done; and so on *ad indefinitum*. Thus the setting-forth of a set of principles of inference, by which deductions shall be drawn from another set of principles of inference, strikes me as a vain complication.

The authors of "Principia Mathematica," in the summary of * 2 and under * 2.38, distinguish carefully between the use of a proposition as a *premise* and its use as a general formula in which a particular substitution is to be made. (In this latter use, they speak of the proposition as a "principle of deduction" or "rule of inference,"

² It should be noted that in "Principia Mathematica" the comprehensive statement of the principle is not given before * 9.12: "What is implied by a true premise is true. Pp."

which seems to me confusing, if not confused.) But in their system the verbally expressed postulate, which, following M. Couturat, we have called the "principle of deduction," is not used in either of these two ways. How is it used? It is a thousand times referred to, but it is not used at all.³ It does, however, correctly (though only partially) describe a process of inference that must continually be performed in building up the system.

Only a few words need be added on the subject of substitution. In "Les Principes des Mathématiques," M. Couturat wrote: "That is not all: to this principle [of deduction] it is necessary to add the *principle of substitution*: 'In a general formula, a general or indeterminate term may be replaced by a particular or individual term.' That is evident, since a general formula has no value at all or even sense except in so far as it can be applied to particular terms. This principle, like the last, can not be translated by symbols, just because it is at the basis of the use of symbols; and, indeed, one could only express it, including the notion of 'particular term,' by means of general symbols [Strange that he did not see that this is equally true of the verbal expression!]; but to apply it to terms that are really particular, it would be necessary to substitute these for the general terms which represented them in the formula, which can only be done by virtue of the principle itself."⁴

On the other hand, "Principia Mathematica" gives no directions that specify when and how the process of substitution is possible. It merely declares: "In such cases [*i. e.*, where it is noticed that certain propositions are instances of general rules already given], these rules are not premises, since they assert any instance of themselves, not something other than their instances." This is almost too witty to be correct. When, for example, in *2.1, $\text{not-}p$ (*i. e.*, the denial of the elementary proposition p) is substituted for p in the formula, " p or p implies p ," making " $\text{Not-}p$ or $\text{not-}p$ implies $\text{not-}p$," it must not be supposed that the latter is an instance of the former. The truth, of course, simply is that every instance of the

³ I must guard against misunderstanding here. So long as the meaning of the symbols is left out of account, this rule, like the other rules for manipulation, is indeed used. It is used as a premise, and deductions are drawn from it. When the symbols are given their logical interpretation, the rule might, indeed, continue to be used as a premise. But it would be obviously superfluous and ineffective; for, using it as a premise, one would have to do the same amount of spontaneous, undirected thinking that its use was supposed to obviate. Accordingly, the authors of "Principia Mathematica" never dream of using it as a premise. And, as we have seen, its use as a formula in which substitution is to be made does not suffice.

⁴ In his encyclopedia article, he writes: "What is true of all is true of one in particular. This axiom is the well-known principle of all particular applications of general theorems" (p. 151).

latter is an instance of the former; and that is true because every instance of not- p is an instance of p (as the postulate * 1.7 asserts). The process of substituting not- p for p in this formula is, therefore, more than a simple substitution. It involves a species of *syllogism*.

To make this clear I must go into some technicalities, for the full statement of the syllogism that is involved will differ according as one rejects or accepts the "theory of types" which "Principia Mathematica" advocates. If that theory be rejected, the original formula will have to be expanded so as to read: "If p is an elementary proposition,⁵ then ' p or p ' implies p ." This would then hold, no matter what is put for p . Substituting not- p for p , we have: "If not- p is an elementary proposition, 'not- p or not- p ' implies not- p ." This, however, is not the result required. To obtain it we need the premise, "If p is an elementary proposition, then not- p is an elementary proposition." This combined with the preceding gives the required formula: "If p is an elementary proposition, 'not- p or not- p ' implies not- p ."

If the theory of types is accepted, the condition, "If p is an elementary proposition" need not be written. For, according to this theory, the truth of a general formula does not require that no matter what particular value is assigned to its variables the result must be a true proposition, but only that it shall be either true or nonsensical; and the conventions that are made with regard to the use of the terms "not" and "or" (and consequently with regard to "implies," which is defined in terms of "not" and "or") are such that this formula is nonsense except when p is an elementary proposition. The formula is, therefore, asserted unconditionally; for it is true for any interpretation of the symbol p for which it has a meaning. Anything whatsoever may, therefore, be substituted for p without danger of error. But that the substitution shall have any logical importance it must be known that the new formula is significant under the same condition as the old. By simple substitution, then, we write: "'Not- p or not- p ' implies not- p ," and know that this is significant when not- p is an elementary proposition. By postulate * 1.7 we know that if p is an elementary proposition not- p is also. Hence we infer that the new formula also is significant when p is an elementary proposition.

On the whole, then, we may say that though the formula in which substitution is made is not a *premise* (as the term is used in "Principia Mathematica," as well as throughout this paper), the complete

⁵ As a matter of fact, if the theory of types be rejected, one will naturally prefer to state the wider formula: "If p is a proposition, ' p or p ' implies p ." But I follow "Principia Mathematica" as closely as possible.

process of substitution does, in such a case as the above, involve syllogistic reasoning from premises to a conclusion.

I will conclude by quoting with a word of comment a passage from "Principia Mathematica" (Vol. I, p. 94): "The purpose of the present section [Part I, Section A] is to set forth the first stage of the deduction of pure mathematics from its logical foundations. The first stage is necessarily concerned with deduction itself, *i. e.*, with the principles by which conclusions are inferred from premises. If it is our purpose to make all our assumptions explicit, and to effect the deduction of all our other propositions from these assumptions, it is obvious that the first assumptions we need are those that are required to make deduction possible." If deduction were not already possible, no array of assumptions could make it so.

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PRACTICAL VERSUS LITERAL TRUTH

THAT there exist in our current discussions and preachments many ambiguities due to needless inexactness of statement, and others due to the use of identical words in differing senses, we are all painfully aware. At best we may hope that time and a more general education will gradually produce a more accurate speech and a wider agreement in definition. But there is another form of ambiguity which it is not so easy to combat, which we may indeed consent to tolerate, because there seems no way to avoid it without an actual loss to mankind. This ambiguity consists in the danger of taking a practical truth for a literal truth. By a "practical truth" I mean a statement which, although not literally exact, yet enshrines a genuine insight, conveys a useful message. The point I wish to make is that the effectiveness of such assertions would often be seriously impaired by such an alteration of phraseology as would remove the ambiguity; and that, therefore, since clearness of thought is not the only, or indeed the greatest, good, it may be wise to suffer these ambiguities rather than to dim the valuable insights which the ambiguous utterances contain.

Ambiguity does not arise when an assertion is obviously metaphorical, exaggerated, or a short-cut expression. When we say, "Architecture is frozen music"; when Emerson says, "Things are in saddle and ride mankind"; when Jesus says, "He that loseth his life shall find it," we understand the metaphor and run no risk of taking the statement literally. When Emerson writes, "What Plato has thought [every man] may think; what a saint has felt he may feel; what at any time has befallen any man, he can understand," we

allow for the exaggeration. When we read in the Declaration of Independence that "All men are created free and equal," we take that to be an elliptical expression of the truth that all men have a natural right to freedom and to equality of opportunity and privilege. Such literally untrue, yet practically true, statements are hardly ambiguous. But there are others which are more likely to be taken at their face value and so to cause confusion.

For example, when Jesus says, "Ask and it shall be given you, seek and ye shall find, knock and it shall be opened unto you," his assertions sound like a promise, and have been quite generally so construed. Common sense points out that many who ask do not receive, many who seek do not find. And yet the saying is not thereby discredited; for it was by no means a mere exaggeration, whose exacter rendition would read, "To some who ask shall it be given, etc." No, what the saying conveys is rather the truth that the way to find is to seek; nothing is to be won unless one bestirs himself to attain it. It is parallel to the common proverb, "Where there's a will there's a way." Literally, that is untrue; in many cases where there is a will there is no way. But this proverb, like the Gospel saying, is not to be dismissed as a statement of probability—it is, as a matter of fact, not a probability, not literally true even in a majority of cases. Still less is it merely a statement of what sometimes happens; such a statement would have no hortatory value. It is rather a veiled, but highly effective way of conveying the important lesson that it takes determination to succeed. "If you would find a way, you must have the will to find it." "If you wish a door opened you must knock." And now my contention is that the literally untrue statements convey the desired moral so much more effectively than these literally exact statements that they are actually, for practical purposes, to be preferred. To whatever ambiguity results therefrom we must be reconciled.

Again, take Carlyle's tirades against a eudæmonistic ethics—that "pig-philosophy," as he called it. Over and over again he insists that it matters not whether men are happy or not; what matters is not the happiness they get, but the amount of work they get done. Taken literally, he would have to be adjudged in error. It does matter whether humanity is happy or not; and the accomplishment of work would have no value if it did not tend in the end to further human happiness. Yet we can not help sympathizing with Carlyle and feeling that his underlying intuition was true. I have elsewhere phrased that truth thus: "It is one of the surest fruits of experience that happiness is best won by forgetting it. To think much of happiness slides inevitably over into thinking too much of present happiness, and more of one's own than of others' happiness;

it leads to what Spencer properly dubs 'the pursuit of happiness without regard to the conditions by fulfilment of which happiness is to be achieved.'"¹ Why not, then, be content with some such expression of this truth? Because—even if I had Carlyle's organ-tones at my command—my exacter statements are, as preaching, far less effective than Carlyle's paradoxical periods. To make the contrast sharper, compare the two assertions, "I must not make happiness my conscious aim!" and "My happiness doesn't matter!" The second has obviously the greater suggestive value. But it is literally untrue, while the other is not.

A closely related instance of a practical truth masquerading under the guise of a literal falsehood is to be found in the oft-reiterated doctrine of Christian Science—"There is no evil!" To the rest of mankind this is the sheerest nonsense. And yet, watch the illumination that comes to the convert, see what a new and profound insight into human life he has discovered; see the effects in his actually transfigured consciousness. For him there is no more evil forthwith. I speak, of course, of those who really grasp the secret; that they do possess a great secret we can not deny, or deny only because we have not personally seen the transformation wrought. So far as practical truth goes, they are right and the scoffers wrong. In a volume now in preparation for the press I have phrased that truth thus: "Evils must not exist for us, must not find a place in our world. Whatever is not good or beautiful or pleasant is to be counted out, thrown overboard, forgotten; is to be as if it were not. Just as when we adopt any ideal we cease to compute and calculate, but throw ourselves whole-heartedly on that side, so in our emotional reaction upon life we are to have eyes only for the good and refuse to see anything else. It is treating the world as we ought to treat our wives and mothers and dearest friends; it is our world, we love it and are loyal to it, for us it shall have no faults." There is, I believe, no untruth mingled with this statement. But I wonder if any one would ever be led to solve his personal problem of evil by reading my words. Tens of thousands have been led to do so by reading Mrs. Eddy's words. And the reason lies not merely in the illusion fostered by taking her words literally—there are some Christian Scientists at least who have no illusion about it—but also, to some extent, in the suggestive power of her literally untrue statements which is lacking in my more sophisticated phraseology. Unfortunate as, for our clearness of thinking, it may be, it seems true that we need the paradoxical form of assertion. Try it yourself, in a serious attempt at auto-suggestion. Say, "I will forget evil, I will banish

¹ I hope I may be pardoned this quotation from my own "Problems of Conduct," pages 85-6.

it from my horizon, refuse to admit its existence," etc. And then say, "There is no evil!" The former method may help considerably; the latter method, seriously enough adopted, can really radically turn your conscious experience into a perpetual sunshine. I never, therefore, deny the assertions of the Christian Scientists; to do so involves—without long and often unsuccessful explanation—seeming to deny the tremendously important insight which they are by those assertions blindly, but very effectively, expressing.²

Similarly, the doctrine of Salvation by Faith, as expressed by Luther, or Wesley, or in the traditional Christian creeds, sounds like a piece of theological speculation which the intellectually scrupulous should hasten to disavow. Yet to reject it would mean to discountenance a method of saving men from sin which has been, and may still be, of enormous efficacy. We might explain the psychology of the process somewhat as follows: "The unhappy sinner, in many cases, has the power to live aright locked up in his heart, but unable to get control of him because it is blocked by the realization of his sinfulness; the formation of new habits is interfered with by his very concentration of thought upon his previous failures. Suddenly he is told that he need not think of his temptations any longer, that he has but to let go, yield himself up to Christ, or to God, and he will be saved. The suggestion of the possession of power is potent enough to make the power actually sufficient. The mind is fixed upon the goal instead of upon the obstacles, is freed from the demoralization that comes from a remembrance of past weakness, and lives in the atmosphere of attainment." This highly important truth is contained in the Pauline doctrine; Paul himself was actually so saved from his life of restlessness and moral failure. And so, however fantastic, literally taken, the dogma of Justification by Faith may seem, we must confess it is a very useful means of preserving and revealing to men a great practical truth which without it might have been lost to Christian experience for centuries.

Ernest Renan applied this same principle to a belief which is far more literally true for most of us—the belief in God. "The word God being respected by humanity, having for it a long-acquired right, and having been employed in all beautiful poetry, to abandon it would be to overthrow all habits of language. Tell the simple to pass their lives in aspiration after truth, and beauty, and moral

²Such a "practically" true manner of speech in relation to this same great truth is to be found, of course, in many besides the Christian Scientists. Cf., e.g., Marcus Aurelius (Bk. II.), "But death and life, honor and dishonor, pain and pleasure . . . are neither good nor evil. . . . Nothing is evil which is according to nature." And Emerson ("History," in "Essays," Vol. I.), "To the poet, to the philosopher, to the saint, all things are friendly and sacred, all events profitable, all days holy, all men divine."

goodness, and your words will be meaningless to them. Tell them to love God, and not to offend God, and they will understand you perfectly."³ For an agnostic, who has no belief in what people generally mean by God—a conscious Being who rules the world, loves men, and hears their prayers—this position seems to me well taken. Even if no such Being exists, the practical worth of the attitudes connoted by the phrases "Obey God's will!" "Love God!" etc., will remain of perpetual worth to men. "To fear the Lord is to hate evil," the Book of Proverbs tells us; and that is what, as a matter of actual practise, it amounts to—that is, as the pragmatist would say, its cash value. To deny God means to most people to deny the worth of human life, the importance and authority of ideals, the existence of a power that can enter into and transform our lives, the possibility of salvation from sin. And no language can so well convey—at least to men of Christian nurture—these important truths as the familiar Christian phrases; the insight and the vision have become wrapped up in them. To substitute other and colder words would be to lose more than were necessary of the zeal and warmth of the spiritual life. So that a spiritually minded man who disbelieved in the literal existence of a God might well hesitate to proclaim his disbelief, and might continue to use, without any hypocrisy, this hallowed language—considering it, on the whole, the best fitted to express positive truths that he felt to be more important than the denial of theism.

These illustrations might be indefinitely multiplied. Almost every sect and school has stood champion for some practical truth, for some truth which it has *found* to be significant, and whose denial would mean a vital loss. It has phrased this truth in language which was not literally true. The literal untruth of statement has aroused the antagonism of the other sects and schools that have not been on the inside, seen into the real practical meaning of the doctrine, or felt its power. Most of the objections to Christian dogmas have been proper—if the dogmas are to be taken literally. But on the other hand, most of those dogmas have been right, and important, and precious—if we look to the practical truth which they enshrine. Of course, the believer holds usually to the literal truth of his dogma; hence the protracted "conflict between science and religion." But not a few religious-minded men to-day are admitting that their beliefs are but symbolic; the scientific objections are valid, and yet—and yet there is "something in" these beliefs that the unregenerate and hard-headed scientist wots not of. Tolstoy, for example, saw clearly enough the irrational nature of the Church's teaching; yet he was

³"Intolerance in Scepticism," in "The Poetry of the Celtic Races and Other Studies." I do not know that Renan ever attempted to generalize this principle.

persuaded that the humble, believing folk had hold of the true secret of life, while he had not; and he had no rest till he found a way to formulate that secret for himself. So is it if one turns the pages of "The Varieties of Religious Experience." Here we are given a glimpse of document after document, expressing belief after belief that we could not possibly hold. Yet these believers saw deeper into life than the skeptic who flouts their credulity; a man must be lacking in sympathetic insight not to feel that. And the Christian Church, in spite of its sad antagonism to clearness of thought and free utterance, in spite of the literal untruth of most of its dogmas, has stood, in a world where spiritual insight is all too rare, for the profoundest and most needed truths that man has ever discovered.

Is this antimony inevitable? Is it, as Emerson said, the unavoidable "fault of our rhetoric that we can not strongly state one fact without seeming to belie some other?" I am afraid that, to a certain extent, it is inevitable. We may discard Paul's doctrine, and Mrs. Eddy's, and the rest. Or we may rephrase their insights in more accurate language. But to do either would involve a practical loss greater than the gain. The language of greatest *power* is precisely the less exact, more figurative language. This is what Arnold had in mind when he insisted so earnestly that the language of the Bible is "literary," "the language of figure and feeling," not "the language of literal fact and science." An expression that is not so "scientifically exact" may be "more proper and adequate to convey what men feel about" a matter.⁴ This is what Seeley, too, had in mind when he spoke of "that kind of imaginative eclipse which an object suffers when the shadow of science passes over it." "There are two ways in which the mind apprehends any object, two sorts of knowledge which combine to make complete and satisfactory knowledge. The one may be called theoretic or scientific knowledge; the other practical, familiar, or imaginative knowledge. For practical purposes, accurate scientific knowledge of a thing is seldom sufficient. The greatest trial of human nature lies in the difficulty of reconciling these two kinds of knowledge, of preventing them from interfering with one another, of arranging satisfactory relations between them."⁵

Would not recognition of these two differing uses of language do away with the confusion from which pragmatism suffers? If a belief "works"—as these Christian beliefs do—is the belief thereby proved true? Not in its literal sense, certainly. No belief ever "worked" better, practically, than the Christian Science belief; but that practical success does not prove that there is, objectively, no evil in the world, that all seeming evil is illusion—"error." What it does prove

⁴ "Literature and Dogma," Ch. I.

⁵ "Natural Religion," Pt. I., Ch. III.

is that there must be "some truth in it," some great insight. So Emerson is right, in a way, when he says, "The religions we now call false were once true." They once *meant* something vital, something real, in men's experience and conduct; now we have only the husks, the verbal formulations, which are, when empty of their soul of meaning, quite palpable untruths. It is becoming popular to argue that Christianity is true because it is verifiable. From a volume just off the press I quote a passage quite typical of up-to-date apologetic: "When men accept the Christian Gospel on faith, they are able to prove it is true in their own experience by the marvelous things it does to them. . . . These things prove the reality and the validity of the Christian faith. They give the only proof of which it is capable, the verification by experience."⁶ To which I say heartily, Amen!—if only the reader will realize that the statements in which these valid Christian truths are presented may be, literally taken, quite untrue. What experience can prove is that the-Christian way is the best way, the way that glorifies life, brings it inward harmony and joy and peace. Such a way of life constitutes, doubtless, the essence of Christianity. But the obvious truth that Christ's way is the right way, must not buoy up and float a conviction of the literal truth of Christian doctrine such as stands in the way of sound historical or cosmological judgments.

One practical bearing of this recognition of the dual function of language lies in the matter, now much mooted, of clerical veracity and the profession of creeds. May one who longs to join the fellowship of those who seek to follow Christ declare his belief in a creed—or in this doctrine or that—which, if he take it literally, he can not honestly believe? "Ascended into Heaven and sitteth on the right hand of God"—thousands of worshipers recite those phrases weekly; how many literally believe that Christ went *up*, into a Heaven in the skies, and is there seated now upon a throne by the side of God? Every one must judge for himself what other phrases of his creed are as purely symbolie. Certainly, if some may be taken, without explicit acknowledgment, in a merely symbolic sense, all may be. And thousands of ministers and members to-day who cling to the traditional beliefs do accept them simply as the expression, in moving and hallowed, but purely symbolie words, of the great Christian truths which they would be at a loss to know how otherwise to express or openly espouse.

This whole matter of the ethics of profession of belief is vastly complicated; and I am not trying to indicate my feeling in the matter. Elsewhere⁷ I have expressed my earnest belief that all

⁶ Albert Parker Fitch (President of Andover Theological Seminary), "The College Course and the Preparation for Life," pages 120-1.

⁷ *E. g.*, in *American Journal of Theology*, Vol. 18, page 257.

creeds and doctrinal statements should be relegated to the background, acknowledged to be what they are, mere stumbling, blundering human attempts to express and explain religious truth; and never thrust upon church-members or ministers as necessary of acceptance. But I should like, on the other hand, to plead with those straightforward, honest people who hate anything that savors of "straddling" or hypocrisy, for a tolerant attitude toward those other brethren of theirs who satisfy their souls best by using the old, hallowed language even though it has ceased to have for them the literal meaning it had for their forefathers. Let not the Unitarian condemn the liberal Congregationalist or Methodist for clinging to the doctrine of the Trinity, or the Atonement, or the Divinity of Christ. Although he may, quite as clearly as the Unitarian, have realized the difference between our modern views of God and Christ and those of the Greek-thinking theologians who formulated those ancient dogmas, yet he fears that by discarding the hallowed phrases, the Unitarian has lost, or is likely to lose, something of great significance from his religious experience. And to help keep alive that experience he deems more important than to show his intellectual enlightenment.

What is true of the "orthodox" doctrines is true in many other fields where true insights, expressed in such a way as to be easily communicable, seem to belie other truths. It is often necessary to point out the literal error; and often possible to make the expression of the truth more accurate without blurring its emotional appeal. But what is most important is to get on the inside, to feel what these superficially untrue statements *mean* to those who so eagerly uphold them, to realize that though they be literally false, yet they may be practically true.

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SOCIETIES

THE NEW YORK BRANCH OF THE AMERICAN PSYCHOLOGICAL ASSOCIATION

THE New York Branch of the American Psychological Association met in conjunction with the Section of Anthropology and Psychology of the New York Academy of Sciences on the evening of February 22, at Columbia University. Five papers dealing with various conditions of efficiency were read. Abstracts of the papers follow:

*Preliminary Report of an Experiment to Determine the Effect of Air Conditions upon the Accuracy of Judgment of Intellectual Products.*¹—W. A. MCCALL.

It was shown by Thorndike, Chapman, and McCall that the effect of air conditions, ranging from 68° F., 50 per cent. relative humidity, and 45 cubic feet of air per person per minute, up to 86° F., 80 per cent. relative humidity, and the air unchanged and stagnant, was absolutely the same upon the product produced by and the rate of improvement of certain mental functions. This was true when the young men tested worked at maximal effort and were subjected to any one condition either one day of four hours or five consecutive days of four hours each.

The purpose of the experiment to be described was to ascertain whether this same lack of difference would be found when the conduct of the experiment and the nature of the tests were such as not to stimulate effort, but to encourage carelessness.

This experiment was conducted in the laboratory of the New York State Commission on Ventilation, where any desired ventilation condition could be very accurately maintained. The tests were made upon four male college students who occupied the experimental chamber for six consecutive weeks, five days to the week and seven hours to the day. Six air variables were employed, each condition lasting one week. The range of air conditions was the same as that noted above.

The psychological tests occupied the first three days in each week and consisted in having the subjects assign values to specimens of penmanship and English composition according to the Thorndike Scale for Handwriting and the Hillegas Scale for English Composition, respectively. In all 27,360 judgments were made. The exact value of each specimen of penmanship and composition has been determined and the average error of the subjects' judgments has been calculated for each of the air conditions.

The subjects also gave a numerical comfort statement. These comfort judgments have been averaged for each air condition. The results justify the following conclusions:

1. The hot humid conditions reduced the comfort of the subjects.
2. The comfort of the subject showed no demonstrable correlation with his accuracy of judgment.
3. The function tested was a highly variable one, but it varied irrespective of the time spent upon the test.

¹ This experiment was a part of the work carried on in 1914 by the New York State Commission on Ventilation, under the general supervision of Messrs. E. A. Winslow, D. D. Kimball, Frederic S. Lee, James A. Miller, Earle B. Phelps, and Edward L. Thorndike.

4. No one condition more than another affected detrimentally the accuracy of judgment of handwriting or composition.

Experimental Studies in Recall and Recognition.—EDITH F. MULHALL.

Experiments were reported concerning, (1) the influence of determination to remember, and (2) the effect of primacy and recency on both recall and recognition. The results showed: (1) Determined recall (recall of material for which there was a determination to remember) differs from undetermined recall more than determined recognition differs from undetermined recognition. (2) The difference between determined recall and determined recognition is less than that between undetermined recall and undetermined recognition. (3) The factor of determination influences the amount of material remembered which can be associated with other material remembered. (4) Primacy and recency both influence recall memory. The influence of each on recognition is less than on recall, but is greater for material devoid of associations and less for material with associations. A detailed account of the experiments will appear in the forthcoming issue of the *American Journal of Psychology*.

Practise and Its Transfer-effects in Cancellation Tests.—M. A. MARTIN.

The object of this investigation is to discover the transfer-effects of practise in canceling a-t words upon certain other cancellation tests. The subjects were divided into two groups: thirty-six in the practise group and forty in the control group. Both groups were tested with a series of seven cancellation tests, after which the practise group was trained in canceling words containing a and t in English prose. The practise periods were ten minutes long and there were four of them each day for sixteen days. Precautions were taken to impel the practise group to a maximum of improvement, and also, in the meantime, to keep the remaining forty that constituted the control group interested in their part of the experiment. In the training series the practise group improved in accuracy from 83 per cent. to 96 per cent., and from an initial average performance of 10.2 cancellations per minute to a final average performance of 26.6 cancellations per minute. After the conclusion of the practise both groups were reassembled and tested with the same seven tests used before the practise began.

The results justify the following conclusions:

1. In the group of tests in which the elements determining the canceling were the same or partially the same as the elements determining the canceling in the practise series the transfer-effects appear as facilitation.
2. In the group of tests in which there were none of the elements

which determined the rate of canceling in the practise series the transfer-effects are without appreciable or reliable manifestation.

3. In the group of tests in which the elements determining the canceling were among those to be neglected in the practise series, while the elements determining the canceling in the practise series were among those to be neglected in these tests the transfer-effects appear as interference.

The Influence on Retention of Conditions Favoring Quickness of Learning.—R. S. WOODWORTH.

Results cited from the literature and from the speaker's own experiments showed that in the main an influence which made for quickness of learning made also for good retention of the matter learned. But there were exceptions to this rule, the most important being that long lists of syllables, or other large masses of matter to be learned, though slowly learned, were strongly retained. This result has usually been explained by reference to the additional study given to the elements of the longer list because of their presence in the long list. An experiment was reported showing that this was not the full explanation. By the method of paired associates, lists of 5, 10, 20, and 30 pairs of unrelated English words were presented, each list receiving three readings, with test and prompting after each reading. The shorter lists were naturally more completely mastered in the three readings than the longer lists. Nevertheless, a test two days later showed that the pairs of the longer lists were much better learned than those of the shorter lists. From the lists of 5 pairs, 6 per cent. were retained; from the lists of 10 pairs, 15 per cent. were retained; from the lists of 20 pairs, 37 per cent. were retained; and from the lists of 30 pairs, 34 per cent. were retained. Retrospective notes by the 25 subjects indicate that length of list acts as a stimulus to effort, and that this effort goes to the discovery of meaningful connections between the members of a pair. Shortness of list favors quick rote learning, without much attention to meaning, while length of list favors meaningful apprehension, which in turn favors retention.

The Energy Error in Interference Tests.—J. J. B. MORGAN.

This paper was the report of an investigation intended to ascertain the effect of noisy conditions upon human activity. The procedure of the experiment consisted in having the subject work continuously at a task, the time for each step being recorded automatically. While thus working severe noises were introduced. Each subject worked for about one hour, a record being taken for the entire time.

The results show that: (1) When the disturbing noises were first introduced they caused a retardation in the speed of the work.

(2) After the first slowing effect, the subject exceeded the speed he had made before the disturbances were introduced. (3) After the removal of the disturbance the subject did slower work. (4) The records of errors do not show any inferior grade of work during the disturbance. (5) Since no index was obtained as to the amount of effort put forth by the subjects, these results throw no light on the favorability or unfavorability of the noisy conditions. They have a purely subjective intent, namely, that the subject is able to call forth enough extra energy to overcome any effect the noise may have.

Two attempts to get such an index were reported. One was by recording the involuntary difference in pressure that the subject exerted upon a dynamometer while at work. With an improvement in technique this method gives some promise. The other was to take a continuous respiration record. Measuring the time of each expiration and inspiration and finding the ratio between them (dividing the expiration by the inspiration) gives a means of comparing the different respirations numerically. In two experiments performed, this method gave definite results. They showed that this ratio increases as the subject begins work and rises to a maximum. As he becomes accustomed to the work it drops somewhat. Noises cause a marked increase in the ratio, and removal of the disturbance a decrease. It is planned to ascertain whether future experimentation will corroborate these results.

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REVIEWS AND ABSTRACTS OF LITERATURE

What Can I Know? An Inquiry into Truth, its Nature, the Means of its Attainment, and its Relation to the Practical Life. GEORGE TRUMBULL LADD. New York: Longmans, Green and Company. 1914. Pp. vi + 311.

This is the first in a series of four projected manuals offering in a popular form the main points in the philosophical system of the Yale idealist. These small volumes are to cover the subjects of knowing, doing, believing, and hoping. The first, now before us, concerns epistemology. The meaning of the question—"What Can I Know?"—suggests a variety of answers from different points of view. The limits of knowledge are set between gnosticisim and agnosticisim, between knowing too much and knowing too little. There are occultists who claim, by some mysterious means, to know how to square the circle and how to apply perpetual motion. There are agnostics who have "too quickly and incon- tinently concluded that they could not know of the existence of a good God, of a soul of their own and in their own keeping, and of the reason- ableness of the grounds for a hope of immortality."

In these words we have the first hint of the three main tenets of Ladd's system. These tenets are absolutism, personalism, and supernaturalism. Yet while the book's purpose seems that of a Christian apologetics, there are certain admissions which appear to frustrate that purpose. The first is the use of the Kantian distinction between subjective sufficiency, or conviction, and objective sufficiency, or certainty. This distinction renders ineffective the author's favorite formula—"thinking one's way through a subject." In place, then, of absolutism we reach pluralism, in place of a block universe, seen practically alike by all "thorough" thinkers, we have a multiverse of many men of many minds. A like fate befalls the second tenet, that of personalism. It is claimed that all trustworthy scientific processes is one of personifying, that "the world of things can be known at all, *if known as it really is*, only after the analogy of the personality of the knower." If Ladd had left out the words we italicize, his remarks would form an interesting contribution to pan-psychism. But it is unfortunate that the writer adds to the argument from analogy the argument of dynamism, not in a suggestive, but in a dogmatic way. We therefore feel tempted to rearrange the reasoning as follows: The world is not known as a collection of dead stuffs; it is known as a network of centers of force; these forces are *perhaps* individual wills. Now baldly to identify force with will, as does Ladd, is to miss the very soul of the machine. From the not-dead we are led on to the dynamic, and are then prone to ask, does not pan-dynamism lead on to pan-theism, the doctrine of an all-diffused force to the doctrine of an all-embracing will? Dogmatically to assert that force *is* will, is to commit the fallacy pointed out by John Fiske when he said that primitive man referred natural phenomena to the wills of personal powers simply because he had nothing else with which to compare them. And yet, as Ladd explains, to range oneself with the physico-chemical sciences, with the strictly impersonal, is not entirely satisfactory. To talk of selves as seats of energies; of energies instead of wills, is to use terms no more representative of the life of the world than the symbols x and y . As Paulsen has suggested pan-psychism, as a modified form of personalism, has had great allurements for scientific minds from Leibniz to Fechner. With this temptation to unify the whole after the analogy of a larger self, it is strange that Ladd should attack Bergson's intuition as discrediting the intellect. The Frenchman's point of view would be fallacious if it were merely negative. But the doctrine of intuition, as presented in "Creative Evolution," is offered not as a negation, but as a supplement to that very intellectual, chemico-physical method which Ladd considers inadequate to explain a living world. Indeed, he proceeds along the same line as Bergson when he attacks formal logic, and in contradiction to the principle of identity, asserts that the very existence of everything consists in perpetual change, the very essence of the self in ceaselessly changing.

With this loosening-up of the old metaphysics, the American acknowledges that the same proof and the same evidence have very different effects upon different minds. In short, instead of "being sure of what we know" he confesses that there is absolutely no sure passage, either for

the individual or for the race, from subjective conviction to objective certainty. Under these circumstances it is hard to see the force of a subsequent statement that "there is no scientific or philosophical school, old or new, that is not virtually some attempt at a system of idealism." Such a statement appears to fit better the author's chapter on "taking for granted" than that on "the degrees and limits of knowledge." The "so-called" pragmatist, for example, who considers himself both "scientific" and "philosophical" is quite unable to reach Ladd's limits of knowledge. The typical pragmatist stops short with a pluralistic universe, because he can not reason out a monistic. He accepts an "ill-conditioned jumble of antagonistic existences" simply because he has evidence that this "multiverse" is not "an orderly and sublimely beautiful and rational whole, a cosmos, a Divine Evolution."

In his crucial chapter on "Knowledge and Reality" Ladd claims that the "so-called" pluralistic universe is a rhetorical appeal to the emotions, and a return to a more primitive conception of disparate and ever conflicting worlds. It is hard to accept either of these strictures and for two reasons. The pragmatic appeal to the emotions was in large measure due to certain inadequacies of intellect.

As Ladd himself says: "Reality is not constructed on the square, nor after the strictest of the logic of Aristotle nor the dialectic of Hegel." Again, if pluralism be a return to primitive belief, so is Ladd's constant use of the anthropomorphic argument. It is one thing to hold that what I can know is determined by human limitations; it is another to assert that anthropomorphism is inescapable, that total reality ends in a "Personal Absolute," that the "Sublime Whole" is "Absolute Self."

WOODBRIDGE RILEY.

VASSAR COLLEGE.

Feeble-Mindedness: Its Causes and Consequences. H. H. GODDARD. New York: The Macmillan Company. 1914. Pp. xii + 599.

Dr. Goddard's data consist of the results of investigations by field-workers into the history of three hundred and twenty-seven families represented in the Vineland training-school for defectives. He groups his genealogical charts into five classes: cases where feeble-mindedness is certainly hereditary; cases where heredity is highly probable; cases where a neuropathic taint exists in the family, although there is no inherited feeble-mindedness; cases where the defect is clearly due to some accident either to mother or child, and cases where no cause could be discovered. There is also a group of unclassifiable cases which were not counted in the results because nothing definite could be learned about them.

The trustworthiness of the material gathered by field-workers on family histories Dr. Goddard thinks may be granted, because in every case where the mentality of a person not actually known to the worker was in question he was given the benefit of whatever doubt might be possible: thus the reports err, it is believed, rather on the side of conservatism. Reinvestigations of the same family have shown this to be the case.

The most striking, and to the theoretical psychologist most interesting, result of the work is the indication that feeble-mindedness is a unit character, and that it is recessive. The family trees make it clear that in no case where both parents were feeble-minded have they produced a single normal child. If feeble-mindedness were a dominant, that is, a positive character, a weak-minded person might have received his trait from one parent only, and he would then, while outwardly indistinguishable from any other weak-minded person, be able to have some normal children. But if feeble-mindedness is due to the lack of something, rather than to the presence of something, then two parents who both lacked this something could not fail to transmit their defect to all their offspring. If feeble-mindedness is then due to the lack of a definite element, this missing element must be that to which normal intelligence is due. It seems strange, when we think of the great complexity of the processes which come under the head of "intelligence," to conceive that it can be a unit character. But as Goddard suggests, the single character may be the presence of some chemical substance which is necessary for the continued maturation of the nervous system. The grade of the feeble-mindedness would then be determined by the point in growth at which this substance gave out.

In general, the author's results indicate the overwhelming importance of heredity as a cause of mental defect. Alcoholism, for example, plays apparently the rôle of symptom rather than cause. Neuropathic taint (under which head cancer is included, for reasons mysterious to the reviewer) is, on the other hand, an important factor. One type of defective, the Mongolian, is more frequently found in families free from any taint, and its cause is therefore suggested to be some physical or mental shock to the mother, or uterine exhaustion in the case of the last-born of large families. The clearly hereditary cases of feeble-mindedness, by the way, are usually those of higher grade, and this is explained on the principle that when mental defect is inherited the offspring have about the same degree of mental development as their parents; the lowest grades of mental defectives do not reproduce.

The most novel feature of Dr. Goddard's practical suggestions about the treatment of the feeble-minded is to the present reviewer his optimism concerning those of higher grade. While he realizes that eugenics demands the prevention of reproduction in the mentally defective, and earnestly recommends the increase of segregation, yet he suggests that we may make the best of the fact that the feeble-minded will continue for many years to reproduce. "Does not our horror at the mating of the feeble-minded and the production of more feeble-minded offspring arise largely from our experiences with them up to the present time, and is not this complicated by the bad environment and mistreatment of which we have spoken? When we have learned to recognize these people and how to treat them, will not the situation be entirely changed? May it not be possible that we will find use for all these people of moderate intelligence, and that the production of so many high-grade feeble-minded is only the

production of so many more people who are able and willing to do much of the drudgery of the world, which other people will not do?"

MARGARET FLOY WASHBURN.

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JOURNALS AND NEW BOOKS

THE MONIST. January, 1915. *St. Thomas in India* (1-27): RICHARD GARBE.—The legend that St. Thomas taught in India is a remodeling of a Buddhist original. The Thomas-Christians fled from Persia in the fourth and fifth centuries to Southern India and could not have influenced native religions before the twelfth century, since previous to that time religious activity was confined to Northern India. *Sensation and Imagination* (28-44): BERTRAND RUSSELL.—Is the difference between sensation and imagination one in the objects of knowledge or in the relations? Together with the differences between images and sense-data, there is a usually recognized difference in the relations of imagining and sensating. There is no way to decide whether the relation of the image to the subject is simultaneous or non-temporal. If simultaneous, the "unreality" of images consists in their failure to fulfil the correlations fulfilled by sense-data. If non-temporal, it consists in their not being given in a definite position in time. Sensation is a relation involving simultaneity between the subject and the object, and the simultaneity is deducible from the nature of the experience involved. *Orthodox and Liberal Christianity: A Media Via* (45-78): K. C. ANDERSON.—There is a "religious" truth as well as a "historical" truth. Liberalism (the basing of Christianity solely upon the fragment *Q*) believes only in historical truth; orthodoxy treats religious truth as historical. The *media via* is to accept orthodoxy as symbolic—whence results a Wordsworthian-Platonic doctrine of the Fall, which the author holds to be the central point of Christian doctrine. *Newton's Hypothesis of Ether and of Gravitation from 1672 to 1679* (79-106): PHILIP E. B. JOURDAIN.—An historical account, continuing the author's series upon Newton, of Newton's views on ether and "whether gravitation is an essential property of matter." *Some Medieval Conceptions of Magic* (107-139): LYNN THORNDIKE.—A collection of twelfth- and thirteenth-century discussions upon magic, showing little agreement beyond the general opinion that it is "true but evil." *Criticisms and discussions: The Purely Ordinal Conceptions of Mathematics and Their Significance for Mathematical Physics*: PHILIP E. B. JOURDAIN. *Magic Stars*: W. S. ANDREWS. *Recent Periodicals*. *Book Reviews: Encyclopedia of the Philosophical Sciences*, Vol. I, *Logic*.

Coker, Francis William. *Readings in Political Philosophy*. New York: The Macmillan Company. 1914. Pp. xv + 573.

Gill, Richard H. K. *The Psychological Aspects of Christian Experience*. Boston: Sherman, French, and Company. 1915. Pp. 104. \$1.00.

Taylor, Henry Osborn. *Deliverance*. New York: The Macmillan Company. 1915. Pp. 294. \$1.25.

NOTES AND NEWS

At a meeting of the Aristotelian Society on March 15, Dr. W. Tudor Jones read a paper on "The Philosophy of Values." "Natural science deals with origins and laws, philosophy with a view of life. Philosophy starts with the phenomenology, not the natural science, of consciousness. The total content of consciousness as revealed in the thinking, feeling, willing, being in all the relations of life is its subject-matter. Hence the two main divisions of philosophy, theoretical and practical or axiological—for man is not a mere passive spectator in the universe, but capable of exercising his will at least upon a portion of it. Values exist only in relation to a subject; the sciences of them are, therefore, disciplines. They deal not with a theoretical content, but with the relation of a subject to some end or value. Logic is a theoretical discipline in so far as it presents the subject with a pathway to truth. Esthetics, ethics, and religion deal with values in their relation to man's life. Beyond the values themselves as they affect the individual, there are the over-individual values which relate to the joint life of the community. Such a value is presented to us by custom—an over-individual value which the subject receives as a social inheritance, but does not create. It is objectified in the general will. Neither of the three systems of values—logic, esthetics, and ethics—touches the whole nature of man, yet only one of them can occupy the consciousness at one time. The final quest of life is for a unity which embraces the three. This unity constitutes the religious or metaphysical value of life."—*Athenaeum*.

THE New York Branch of the American Psychological Association met in conjunction with the Section of Anthropology and Psychology of the New York Academy of Sciences on April 19. The following papers were read: "Relative Performance of Negroes and Whites in Some Mental Tests," Mr. G. O. Ferguson, Jr.; "Distribution of Time in School Exercises," Professor Robert A. Cummins; "Report on Experiments with the Hampton Court Maze," Professor H. A. Ruger; "Completion Tests with Public School Children," Mr. R. Trabue; "An Experimental Study in Values," Mr. M. A. May; "The Study of Foreign Languages in Relation to Standing in Psychology," Professor Will S. Monroe; "Scientific Method in the Interpretation of Dreams," Mr. Lydiard H. Horton; "Some Experiments in Recall," Dr. Garry C. Myers.

MR. BERNARD BOSANQUET has brought together in a small volume some "Lectures on Esthetics," which he delivered at University College, London, last autumn. The first lecture deals with "The General Nature of the Esthetic Attitude—Contemplation and Creation"; the second with "The Esthetic Attitude in Its Embodiments—Nature and the Arts"; the third and last with "Form of Esthetic Satisfaction and the Reverse—Beauty and Ugliness." The volume has been issued by the Macmillan Company.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

THE DISCOVERY OF TIME

III

THE SUPERNATURAL CALENDAR

THE practical needs of farming have, therefore, taken us a little distance toward astronomy; but yet not far. It is doubtful if that alone would have ever produced the mathematical calendar, for a day more or less one way or another is seldom a matter of much importance in such operations. But there was another element in the situation, more important than practical needs or the homely observation of nature, that of religion. For the early farmer was surrounded by more than merely natural phenomena. Spirits, presences, gods and demons, shared his world with him on rather more than equal terms; and his *luck* in farming—as in everything else—depended upon keeping on good terms with them. Hence his anxiety (the Romans called it *religio* or *religion*) to know exactly what to do and when to do it. For evidently the gods of the harvest are about when the grain is ripening; mildew and frost, rain and drought, are due to the spirits of soil and weather, and one never can tell what may happen. One must, then, placate the gods; that is as much a business as to plough or fight; and the gods will not be placated unless one sacrifices to them in seemly fashion, taking a day off, now and then, to do it. They are not satisfied with casual attentions; they insist that the whole society, family, village, city, or state, shall worship at one and the same time.¹ It does not do to worship when you feel like it; to arrange the ceremonies to suit your own convenience. You must suit the convenience of the gods. They have, themselves, indicated in some way or other what times should be devoted to them.² And they are exceedingly particular and liable

¹ A singular indication of the social origin of religious belief. Cf. H. Hubert, "La Représentation du Temps" in "Mélanges d'Histoire des Religions" by H. Hubert and M. Mauss (1909) pages 219 ff.

² The best example of this "revealed" character of the religious calendar is, of course, in the Mosaic code.

to take offense. One need not care whether the grain is sown on the afternoon of one day or on the morning of the next so far as mere farming goes. But if the morrow be a Sabbath, pagan, Jew, or Christian is likely to suffer the consequences of some divine displeasure. And so, in a world inhabited jointly, even worked in common, by men and supernatural beings, it was necessary for the junior partners to adjust themselves to the ways of their uncanny, but powerful colleagues. It was, therefore, not by chance that the formal reckoning of time³ grew up in the hands of those first specialists of the great science of living, the priests.

Religion, then, combined with the observation of nature, presided over the origins of the calendar. The simple lore of the weather remained, as we have seen, like a persistent vernacular alongside the formal arrangements of priestcraft; but the anxiety to be in right relations with the uncanny powers which dispense the good and bad things of life was bound to force a more careful observation of the calendar than the return of the cuckoo or the rising of the Pleiades. So the calendar began everywhere, the world over, as a cycle of religious feasts. It was the gods, not men, for whom and by whom the days to count were first marked out. A part of the time became definitely the property of the gods. It was henceforth a violation of divine law to work or transact business on the days thus set apart. Holidays were at first genuinely holy days, and the calendar grew up around them. They were and are—taboo; not to observe them with proper ceremonies was to bring down upon one the power of the curse which is the awe-inspiring element in the early idea of the sacred. One needs no stimulus to the imagination from anthropology to realize the force of this, for out of the background of our minds there are few of us who can not still, by slightly straining our ears, hear the thunders of Sinai if we play a game of golf on Sunday. If that is the case in this highly secularized twentieth century, we can imagine what the taboo on time meant—and means—to those whose world had been so largely shared with these mysterious presences. It was necessary to find some way by which the festival, the *dies nefastus*, or the day on which business was sacrilege,⁴ should not be violated. It had to be kept track of in order to insure that the proper festival should be celebrated upon it. Hence the elaboration of that succession of religious feasts and fasts, such as still persists in our church calendar. The idea would not naturally occur to one that

³ Or, to be more exact, of times.

⁴ The Romans, characteristically viewing things from the practical point of view, had the terms inverted: the *dies fasti* were those on which *business* was permitted. Business, not religion, was the criterion.

the lists of saint's days and holy days which preface our liturgies are the historic remnants of the first definite marking of time.

This is carrying us a long way back; but there are other traces which open up even dimmer antiquities. For in the practically universal superstitions about planting crops, gathering herbs, or doing almost anything in the dark or the full of the moon, we have a clue to something infinitely older than any sacred date commemorating miracles, that first vague fear of the uncanny and sense of its possibilities for good or ill out of which theologies as well as calendars have been born. The key-note to the whole story lies in the word "luck." To us, now, rather colorless and incidental, a thing to joke about, "luck" stands throughout the ages as the unsolved in the stern problem of life, the element which lies beyond control. It is no trifling matter; life and death depend upon it, the life and death of nations as well as of individuals.⁵ It plays even athwart the will of gods, and so, paradoxically, justifies their ways to men by offering an explanation of their failures. Elusive, never fully revealing its presence until the damage or the benefit has been wrought, it yet stimulates the mind to be up and after it, to apprehend it beforehand, if possible; and the response to that stimulus has led to the larger part of the evolution of the human intellect. For the apprehension⁶ passes from nerves and sense to the processes of observation which lead to intelligence, or else concentrates in the emotions and so opens up the responses of fear and awe. On the one hand lies science; on the other, religion.

There is no sure way of dealing with luck. That fact lies in its very nature. But one thing is agreed the world over: it is associated with the uncanny, the queer, the unaccountable, the un-understood. Things that force themselves upon one's attention and yet remain unexplained or unappropriated, are especially known to be full of the mysterious potency. If things are weird and awesome, they will "get you" if you don't watch out. If they are fair and seem promising—like a waxing moon—they will likely bring good luck. But there is no logic in the matter. It is a jumble of outlandish beliefs, intermixed with some genuine observation of nature. However, the very obscurity of the lines of thought upon which these magical-religious ideas rest furnishes us with one clue for their apprehension. The things of luck are not closely defined and distinct; they fuse together. One thing passes along its luck to another. This is what

⁵ Cf. Polybius or Cæsar or any other antique observer of the power of *Tύχη* or *Fortuna*.

⁶ The word "apprehension" fortunately has both these meanings.

anthropologists call the principle of contagion.⁷ On a night when the moon is in eclipse, the dangerous power is there—dangerous if you deal with it the wrong way. The primitive can not quite tell you whether the power is in the moon or in the shadow or in the night; but on that night he knows that it is there. And so a time when such weird, unaccountable phenomena occur is so closely associated with the phenomena as to absorb into itself the very luck of the things with which it was connected. The principle involved in this is capable of the widest application. Give a day a name, and, like a man, it absorbs the luck of the name. Since certain numbers are as lucky as names, if not more so, numbered days are just as subject to the contagion. Hence we find that, quite apart from festivals to the gods, days differ in their virtues. The belief is, we surmise, as old as the discovery of time; it still persists, hardly yet degraded to the rank of superstition, in the attitude toward Friday and the thirteenth.

This excursion into primitive psychology has really, then, brought us into the heart of our subject. For we have the calendar now opening up before us.⁸ Time was not discovered by counting days, like knots on a string, but by observing their virtues. We have already seen this in the practical farming calendar, where the signs of the seasons are observed to make sure that the right thing shall be done in its time, that the vintage be begun under the star that is associated with it, and the like. To plough out of the ploughing season is to invite failure; the very fact that one talks of the "ploughing season" shows that time is described rather than counted. The same is true, much more obviously, of the calendar of luck and of mythology. Days differ in their virtues so much that one of the main problems of life is to find out which is which. The old belief runs like a persistent theme through the Old Testament, and perhaps never had a fuller statement than in the third chapter of Ecclesiastes: "To everything there is a season, and a time to every purpose under heaven; a time to be born and a time to die; a time to plant and a time to pluck up that which is planted." Here, however, we run over from the waywardness of luck as chance into the iron grasp of Fate⁹—a transition not difficult to make.

⁷ Of course this applies to the whole sphere of religion, more especially to the sacramental or sacrificial aspects. Robertson Smith's phrase "the contagion of holiness" seemed to many sacrilegious thirty years ago. It is a commonplace now in comparative religion.

⁸ The calendar is thus obviously rather an expression of the variety and value of times than a mere counting of units.

⁹ Fate may be regarded as the luck in essentials, *i. e.*, in matters of life and death; it can not be escaped, and so we are impressed mainly with its irrevocable character, but in essence it is like the luck of lesser happenings, which may be avoided and so seem wayward, chance, as uncertain as fate is certain.

Now, if there is a time for everything; if some days are lucky and some are unlucky, it is highly important to keep track of them, and there is only one way to do so,—by watching the heavens. Sun, moon, and stars, by their recurring movements, furnished a basis for reckoning, indeed the only basis either for primitive or civilized; for the most perfect of mechanical chronometers to-day must be continually verified by the sun. But we must be careful in our survey of the origins of the calendar not to put the cart before the horse. Sun, moon, and stars were invested with the miracle of luck untold millenniums before their cycles were reckoned into calendars. The step between the observation of nature, stimulated by supernatural fears, and the development of mathematics is one which only a relatively small portion of the race has been able to take until the very present. The stars that shone over Babylon, in all the brilliance of the oriental night, offered themselves first to the imagination of the ancient Chaldeans as objects of superstition, as the living counterpart of living things below, and not as a procession of units in a mathematical table. But, fortunately for the future history of the race—for civilization rests largely upon the fact—this was one part of religion where the supernatural was calculable.¹⁰ The gods of rivers or storms and all the variable phenomena of nature leave man always uncertain of their caprice. The same is true of the gods or demons of disease or health, of property and the like. Primitive theology tends to become less sure of its efficacy the more it deals with such wilful Powers. But the gods of the sky are in another class. They come and go on surely; their motions, once observed, are so exact as to furnish the mind with its one real picture of regularity in a universe where everything else is in a jumble and seems to be run utterly haphazard. The stars of Babylon are still shining.

Hence here, and here alone, in the history of religion, there opened up before men's eyes the prospect of actually penetrating the mysteries of the future with purely human intellect. The god would come again, the cycles would be repeated, and the luck which would be discharged upon the earth from their astral bodies would be what it had been when experienced before. So superstition developed the rudiments of astronomy, and the study of astronomy strengthened the superstition. The "virtue" in the stars started people counting their revolutions or measuring their positions; in short, "religion" called out science. It was to be many a century before science had matured sufficiently to assume that cold, ungrateful attitude toward its progenitor which led it to deny the very existence of the "virtue," and ridicule the attempt to learn that part of time which the stars were first supposed especially to reveal—the future.

¹⁰ So here the data of religion become also the data of science.

Astrology, the parent of astronomy, was more a religion than a science. It was a science of priestcraft; its principles were worked out by a great cooperative effort directed for the service of religion. Mathematics was largely begun under its auspices, and so appropriated to the mysteries that the astrologers were ordinarily known in Roman law simply as "the mathematicians." Mapping the universe with the care of professional observers, they tried to measure not only the position of the stars—and so to tell the time by the clock of the universe—but also the force of that mysterious power of luck which the stars cast, stronger than their rays, upon the earth. Like Newtons of the pre-scientific world, they dealt with a force of attraction which bound the stars together—spiritually. This is more than a chapter from the history of delusion. The best, rather than the poorest, minds of antiquity were adherents of astrology, and in its lap was nursed that genuine science which at last enabled men to measure accurately both space and time, and so to pass from the rude guesses of trial and error to the settled conquest of our whole environment. Egypt and Babylon offered Greece the basis of its reckoning, and the science of measurement—not of motion, but of things at rest—was the fundamental intellectual contribution of antiquity. If the stars had not been worshipped and their virtues regarded as decisive in the realm of Fate, all this could hardly have been.

IV

FROM LUCK TO MATHEMATICS

*Months, Weeks, and Years*¹¹

When we come to look with scientific eyes, however, at the data of the heavens which were gathered for the service of religion, we see how poor and insufficient they must have been. The recurring heavens are an almost inextricable tangle. There are no satisfactory units. The day, the most obvious astronomical measurement, is too short to serve as anything but the counter for longer periods. It has to be fitted into a calendar instead of furnishing one.¹² The solar year

¹¹ Perhaps the best single survey of the various calendars of different peoples is the article "Calendar" in Hastings's *Encyclopædia of Religion and Ethics*.

¹² It is possible that in what follows, as we trace the growth of the larger time—framework of months, years, centuries, etc., we may lose sight of this fundamental importance of the day, which after all is the main time unit. In this connection the story of Creation, as told in Genesis, keeps recurring to our memory as we move along this border-land of poetry and religion: "Evening came and morning came, a first day." The separation of light from darkness

and its accompanying stars may supply a framework for the calendar, but, as we have pointed out, their intervals are, on the other hand, too long to be of much service in actually reckoning or dating events. The moon seems at first to meet the situation, and this is the setting for its prodigious rôle in the history of both religion and the reckoning of Time. Waxing and waning in periods not too long for even low-grade intelligences to follow, sufficiently later each night to mark its new position, and sufficiently changed in form in the course of a short interval to show a different aspect, dominating the sky when full, and mysteriously, but faintly shining in its last phase, after the sun has effaced the stars, the moon attracts attention above all else in the heavens. There is a fund of primitive philosophy in the claim of the old negro, in the story of the debate as to which was the more important, the sun or the moon, that the moon was the more important because it shone by night when it was needed, while the sun came only in the daylight. The prominence of the moon was further enhanced by its relatively common practise to enter into an eclipse. All these practises seemed to witness to an unusual amount of uncanny power in it, or associated with it. Whatever god or goddess it might be termed, it was *par excellence* the dispenser of luck. Its very motions made a "luck calendar" which has lasted from pre-historic ages till to-day.

The month, then, as the most natural, was the most important unit of time for religious observance, and the importance of religion made it the dominant factor in the antique reckoning of time. But, as we remarked at the opening of our study, it is a unit which fits nothing else; neither days nor years coincide with its cycles. When we try to divide it up, we find that the astronomical (synodical) months contain 29 days, 12 hours, 44 minutes, 2.9 seconds,—which is $53059/100000$ of a day more than the even 29 days.¹³ When we try to fit the lunar year with the solar cycle, upon which the practical business of settled life depends, we find the same ragged fraction of time that will not fit; for the lunar year is 354 days, 8 hours, 48 minutes, and 36 seconds. So that if we follow the moon we go astray in both days and years. There could hardly be a better proof of the power of religion in the pre-scientific world than in the fact that this

marked the first act of creation: and the result was—Time! Such is the common impression of the implications of that text. Behind it lay eternity, which was sometime different. As a matter of fact, all that happened was the appearance of a time-schedule. The clock of the universe was set going.

¹³ The tropical month, *i. e.*, the mean period taken by the moon in passing through 360° longitude, as from one vernal equinox to another, is 27 days, 7 hours, 43 minutes, 4.7 seconds, which is 6.8 seconds less than the sidereal month, the difference being due to the precession of the equinox.

inadequate lunar period held its own as the unit of time-reckoning down to the climax of antique culture; for the festivals of the gods, based upon it, were more vital than the business affairs of men.

As for the measure of time within the month, no one but an astronomer would think of any unit but the day—which has, of course, nothing to do with the moon. The period between moonrise and moonset is unknown to most of us even now. It is an item to be looked up in an almanac, not a fact of practical experience. Yet the days and nights need not be counted straight through the month, from one new moon to another. For the phases of the moon offer an easy means of division. The full moon on the fifteenth is as important as the new moon on the first, in some ways more so. There are festivals to be kept on both dates, the world over. Moreover the first half of the month, while the moon is waxing, occupies a different place in the dynamics of luck from that of the last half, while the moon is on the wane. It stands to reason—primitive reason—that the luck of the moon is good while the moon is growing, bad while it is losing its strength and size. For if the moon can impart its virtue, it must impart the kind of virtue which it itself possesses at the time. Moreover, this idea links itself up with all those vague, but convincing analogies and ideas of contagion which underlie the practises of what we call sympathetic magic. Similar things are associated with similar results; things once in contact with other things absorb their qualities, and the like. In this way the moon—or rather the potency in it—practically dictates the time for enterprises. Bad luck, sickness, sterility, and the like, attend the waning moon; one must not plant crops or undertake business at such an unpropitious time. It is doubtful if mankind has ever had any other single belief, according to which it adjusts its action, so widespread and so ancient as this old superstition of the moon. To judge from anthropology, it is rooted in an antiquity so vast as to make the years between Babylon and now seem like a day; and it is as firmly held by many a farmer in our enlightened twentieth century as it was by the savage whom he has replaced.

When we pass from such general principles, however, to definite days, from rude observation to accurate counting, and try to reduce the periods of the moon's phases to so many days and nights, we come upon something more curious and less explicable than the religious beliefs about the moon or stars. For the numbers by which the days are counted are themselves charged with luck! Just why, no one knows; but this, too, is a fact the world over. Primitive man does not count with mere units; the numbers vary in power or prominence; some are unimportant, some are sacred, charged with

that same pervading, mysterious luck, which we have seen to reside in every peculiar, uncanny, or striking phenomenon of nature.¹⁴ The sacred numbers differ in different parts of the world; yet, the same general principles seem to apply everywhere. The Australians have a world in which even human relationships, such as the classifications for marriage relationships, are largely dominated by the simple parallel in two, in which connection one should recall that the Romans went to the extreme of regarding all even numbers as unlucky, with the result that their calendar is unusually hard to straighten out. The number three may owe its sacred qualities to some such suggestion of completeness as one gets from the idea of beginning, middle and end, or perhaps, to the vaguer suggestiveness of finality in rhythm. In any case the triads of the gods, as in Egypt and Babylon, long precede the development of the Christian Trinity. The number four, which lost its religious potency in the Christian world,—possibly because of its place between three and seven, in which it was obscured by the latter,—was the object of a wider primitive cult than any other. It was the number of the four directions and as such one sees traces of its mysterious power in the all but universal sign of the cross.¹⁵ Moreover, as the symbol of the dimensions of space, it was accepted by the Pythagoreans as the most perfect number, and so exerted its spell upon that mystic trend of thought which passed from Greek philosophy along the borderline of medieval magic. But no other number has had such a tremendous history in European civilization as the sacred number seven,¹⁶ sacred or accursed, as

¹⁴ This opens up a field as yet but little explored, that of the mystical, religious, pre-history of mathematics. A short, but most suggestive survey of the field is given by W. J. McGee in his article on "Primitive Numbers" in the *Nineteenth Annual Report of the American Bureau of Ethnology*, II., 821-852 (J 900). Cf. also J. H. Graf, "Ueber Zahlenaberglauben."

¹⁵ This question of orientation, as for example, in the placing of the temples of antiquity—or for that matter any definite boundaries—is a wide and alluring field. It corresponds, relative to space, with the questions treated here, relative to Time. The starting point for research in the antique field still remains the old work of Heinrich Nissen, *Das Templum* (1869).

¹⁶ The sacred power of seven is recognized all over the world. Everyone knows of the uncanny power of the seventh son. In China we are told that the emperor was wont to sacrifice on seven altars to seven groups of spirits; that he was placed in his coffin on the seventh day after death, and was buried in the seventh month. In India and Persia, in early Teutonic and Celtic religions, the system of seven constantly occurs, as also in Greece and Rome, where the seven hills form an obviously artificial grouping on a religious basis. There were in reality more or less than seven hills in Rome; it all depended on how one wished to count them. Such references are compactly grouped by O. Zöckler, in the article *Siebenzahl* in Hauch-Herzog, *Realencyclopädie*. (Abbreviated but with good bibliography in the new Schaff-Herzog, *Encyclopædia of Religious Knowledge*, article "Seven"). Cf. also the article

in early Babylon, for the curse and the blessing are all in one category for untrained minds. To it is due the whole Sabbatical system of Jewish and Christian law, into which we have had to fit the mechanism of our civilization. The week of seven days cast its shadow backwards as well, along Jewish history, and in the hands of priestly theologians it became the basis for the framework of the story of creation as recorded in Genesis. The work of the Creator was assigned six days and thus was secured an ultimate authority, in the revised mythology, for the Sabbath of the seventh—henceforth devoted to Jahve.

The week of seven days, although falling within the month, had, therefore, another origin than as a mere division of it, corresponding to the phases of the moon.¹⁷ In the first place it does not correspond. The four weeks are out at the end of the fourth phase, or last "quarter" of the moon, by a day and a half. The luck of numbers, which seems to us so fanciful and unreal, was strong enough to give the seven-day period an existence of its own, making a purely conventional cycle which cuts its way through years as well as months and corresponds with nothing in the whole range of nature. Perhaps its very singularity had something to do in securing for it the acceptance of those credulous civilizations of antiquity to whom we owe both our mathematics and our reckoning of time; but whatever justification we can find for it in primitive psychology, it rather complicated than helped the development of a rational calendar.

The week does not owe all of its vitality, however, to the mystic power of a sacred number. It has been, as well, a cycle of religious feasts in which each day is dedicated to a deity.¹⁸ This was already the case in Babylon, where each day was linked with the worship of the major divinities of the astral religion—the sun, moon, and the five planets. The order of their succession seems to have varied in the records of the Babylonians,¹⁹ but after the later paganism *Zahlen* (Kautsch) for Biblical citations of sacred numbers. The Sumerian word for seven was translated by the Semitic Babylonians by a word meaning completeness, which carries us back beyond all Babylonian history.

¹⁷ Hehn, *Siebenzahl und Sabbat* in *Leipziger Semitische Studien*, II., 1907, attributes it to the phases of the moon, while refuting its derivation from the seven planets. Against his view, see Ed. Meyer's *Geschichte des Altertums*, pp. 578–88, Meyer holds that the sacredness of seven is due to its being prime and difficult to reckon.

¹⁸ Except, of course, in the Jewish religion, where monotheism concentrated its taboos upon the Sabbath.

¹⁹ Cf. Ginzler, "Handbuch," I., pages 120, 121.

had properly translated the deities into the Greco-Roman pantheon,²⁰ a Christian world finally accepted Sun, Moon, Mars, Mercury, Jupiter, Venus, and Saturn as the proper names in the proper order.²¹ Thus the week remains in form, though not in substance, the most perfect remnant of the ancient, religious cycles. The use of names for days, instead of numbers, has proved too useful a device ever to be discarded by a race that still finds arithmetic less interesting than description.

The only people of antiquity who numbered the days of the

²⁰ The week was adopted in the Roman Empire largely through the influence of the Persian religion of the sun-god Mithras, in which there was a special liturgy for each day's star, as in the case of the Chaldaeans. Cf. Cumont, "Astrology," page 164. There are few more interesting sources in this connection than the eighteenth chapter of the thirty-seventh book of Dio Cassius, in which he attempts to enlighten his age on the origin of the names of the days of the week. It is a good example of the misinformation of an antique rationalizer. He attributes their origin to the Egyptians, who, so far as we know, did not have the seven-day period, except as they may have been familiar with the astrological lore of Babylonia. Then he has two theories to advance, one of which suffices here: "If one apply the so-called principle of the tetrachord (*i. e.*, skipping two stars in the count every time one goes over the list),—which is believed to constitute the bases of music,—to these stars in order (of their distance from the earth) . . . and beginning at the outer orbit assigned to Saturn, then, omitting the next two, name the master of the fourth, and after him, passing over two others, reach the seventh, and so on the return . . . in this same way, calling them by the names of the days, one will find all the days to be in a kind of musical connection with the arrangement of the heavens." . . . The other account of Dio need not be taken any more seriously than this one. One sees, however, the artistic possibilities of the world of time.

²¹ For the transmission of this astralization of the gods from Babylon to Hellas see the short, clear account in Cumont's "Astrology and Religion among the Greeks and Romans," Lec. II. In Homer the planets are named from their qualities. "Herald of the Dawn" (Venus), "Twinkling Star" (Mercury), "Fiery Star" (Mars), "Luminous Star" (Jupiter), "Brilliant Star" (Saturn). After the fourth century these became Aphrodite, Hermes, Ares, Zeus, Kronos, corresponding both to their qualities and to the Babylonian parallels of Ishtar, Nebo, Nergal, Marduk, and Ninib. "Thus the names of the planets we employ to-day, are an English translation of a Latin translation of a Greek translation of a Babylonian nomenclature." French and Italian perpetuate the Roman day-names: Lune-di or Lundi, Marte-di or Mardi, Mercoledì or Mercredi, Giove-di or Jeudi, Vener-di or Vendredi. In Sabbath and Samedi, however, the Jewish Sabbath triumphed over Saturn, just as Domenica or Dimanche is the purely Christian *Dies Dominicus* or Lord's day. Of the Teutonic counterparts, "Tiu" seems to have been a somewhat obscure parallel of Mars, as the nominative form is not found and the genitive "Tines" is found only in the name of the day. Woden, Thor, and Freja are, of course, recognizable. Thor's day seems to have been the most important day in the Scandinavian world, as it was upon that day that the assemblies met.

week, instead of naming them, was the Jews.²² The "Sabbath," sacred to Jahve, was the one day with a name, the rest were reckoned up to it.²³ The week was a cycle concentrated upon its closing day. The Bible is full of the precepts of law and prophets concerning it, and the whole national life and thought were deeply colored by it, as we have intimated above. But modern criticism is inclined to state that this coloring was a relatively late operation, the work of the Jahve priests after the captivity. The natural conclusion, then, would seem to be that the Jews took the seven-day week from Babylon, and such is the statement generally to be found in popular treatments of the subjects. But careful scholarship is not so sure; for, so far, in all the cuneiform inscriptions there is no trace of a Babylonian week, which, like that of the Jews, cut its way as a cycle completely independent of the moon, undisturbed by the boundaries of months or years.²⁴ Wherever and whatever its origin, however, the Jews were mainly responsible for its adoption by the western world, though we have taken it over in a perverted form in which the first, instead of the seventh, day becomes the pivot upon which the cycle turns. The law of Constantine which definitely established the "Day of the Victorious Sun" as the religious holiday, while opening the door for the ever-living influence of Babylon by way of the Persian sun-god, allowed the Christians

²² To-day perhaps the only religious sect to protest against the pagan days of our calendar is that of the Friends, or Quakers, but from a different motive from that of the Jew. For the Quaker makes it a rule of faith to deny that one day is more sacred than another, and to carry this theory over into practise goes to "meeting" on "Fourth Day" as well as "First Day."

²³ To be sure, in one sense, the naming of the Sabbath named the other days as well. They were parts of the Sabbatical cycle.

²⁴ The origin of the week of seven days has been generally ascribed to Babylon. The Hebrew "Sabbath" has been held to connect with the Babylonian "sabattu," which was used to denote days of penitence. But no inscription so far has revealed the use of "sabattu" for the seventh day, although the number seven was a sacred—or fateful—number. The seventh, fourteenth, twenty-first, and twenty-eighth days of the month were "evil days,"—a fact apparently connected with the four quarters of the moon. But that is quite a different thing from a week which breaks through the months altogether and continues its way undisturbed by phases of the moon. Of this there is as yet no trace in Babylonian inscriptions. Moreover, the fifteenth, the full moon, seems as well to have been "sabattu." This leads to a recent conjecture that "Sabbath" is to be derived rather from *sabbat*, to be complete, *i. e.*, the day when the moon has completed its phase and is full. The transference of the periods from lunar to purely numerical would have been the work of the priesthood after the return from the captivity. The rôle of the Israelites in the adoption and spread of the week is beyond question, but that they invented it instead of working it over from Babylon, is a point as yet unsettled. On all this see the summary in Ginzel, I., 118 ff., 5 ff., and authorities there cited.

the chance to appropriate for the church a cycle which harmonized with its own. For from early days the Christian festival, the Day of the Lord (*Dies Dominicus*),²⁵ had been the first day of the week. The day of Mithra and of Jesus was henceforth to outshine new moons. The sacred number seven, crowned with myth and historic associations, carried the day over the luck of monthly periods; orthodoxy triumphed over superstition!

The week of seven days was an invention of the Scmites. The Egyptians used a "decade" of ten days, and, owing to their early adoption of the solar year, they made no effort to fit it to a lunar month, but counted 36 weeks one year and 37 the next to round out a two-year period of 365 days each. The Greeks, also, used the period of ten days as the basis of their "week," but tried as well to fit it to the month which, of course, could not be done, since their alternate months were 30 and 29 days. The result was that the last decade of a "hollow" or short month was a bothersome irregularity.²⁶ The Romans used, upon the whole, the most complicated

²⁵ The origins of the Christian's celebration of the first day are obscure. They were apparently observing it already in the time of Justin Martyr by the middle of the second century. Perhaps it was partly due to the observance of the day of the resurrection. Cf. I. Cor. xvi, 12; Acts xx., 7; John xx., 26. But there is no command to observe the Lord's day in apostolic literature. The *Didache* emphasizes the significance of "The Lord's day of the Lord" by an unconscious pleonasm, but makes Wednesdays and Fridays memorial days as well as fast days in commemoration of the betrayal and crucifixion (c. viii.). Ignatus, however, shows the distinct advance. Sunday is to him "the festival, the queen and the chief of all the days of the week" (*Magn. IX.*). The earliest apologies, therefore, seek to explain that the first-day is to be substituted for the seventh of the old dispensation; cf. Epistle of Barnabas, XV. Justin is the first to mention it as "the day called Sunday" (*Apol I., 67*). Two centuries later Sunday legislation begins by the constitution of Constantine of the year 321. The distinction it draws between the practical and the religious calendar is curious. "All judges and city folk and all craftsmen shall rest on the venerated day of the sun. But country folk may freely . . . attend to the cultivation of their land, since it often happens that no other day is so opportune for sowing the grain in the furrows or setting out the vines in the ditches; so that the advantage of a favorable moment granted by providence may not be lost." *Cod. Just. III., tit. 12, 1, 3*. Cf. M. A. Huttmann, "The Establishment of Christianity," etc, page 158. This was the old Roman customary treatment of agricultural work on holidays; cf. Vergil, *Georg. I., 268 ff.*, Cato, *De Rc Rustica*, c. 2. A long series of imperial constitutions followed, most of them gathered up in this same title (*De Feriis*) of the Code of Justinian.

²⁶ This is, of course, for business and state purposes. The month was also observed in the farmer's calendar, and it had its lucky and unlucky days, just as in Babylon—or any place else the world over. Hesiod's farming calendar ends with a list of them. The luckiest time is about the eleventh and twelfth, just as the moon is reaching the full; the second half of the month, including the fifteenth, is, upon the whole, unpropitious, although with some peculiar ex-

and difficult calendar with which history deals. "Every school boy" is supposed to know its devious turnings and its ungrammatical grammar. But however much one learns it, only the teacher is likely to remember it beyond next day's recitation. The month was divided in the middle by the *Idus*, which fell on the fifteenth or the thirteenth day, and then the time between it and the first of the month (the *Calends*) was divided by the *Nones*, which thus fell on the seventh day of a thirty-one day month and on the fifth of the others. This back-handed way of counting was complicated by the twisted arithmetic which always seemed a day out in its reckoning. Only some mystery of the religion of luck,²⁷ can account for such a calendar.

ceptions. This, however, was rather folk-lore than calendar. Mr. Mair, in his edition of Hesiod, has arranged the month "according to what appears the most probable interpretation," as follows:

1. A holy day.
4. A holy day. Propitious for marriage, for commencing to build ships; a day on which sorrow is to be avoided.
5. An unpropitious day. On this day the Erinyes attended the birth of Oath (*Horkos*), whom Strife bore to punish perjurers.
6. Unpropitious for the birth of females; propitious for the birth of males: only such a child will be prone to mockery and lies and crooked words and secret talk; propitious for gelding kids and lambs and for penning sheep.
7. A holy day. Birthday of Apollo.
8. Geld boar and bull.
9. Altogether propitious: to beget or to be born, for man or woman.
10. Propitious for the birth of males.
11. } Most excellent for mortal works: for reaping and for shearing sheep. Yet
12. { the twelfth is even better than the eleventh. On the twelfth, when the spider spins its web in full day, and the ant gathers her store, a woman should set up her loom and begin her work. On the twelfth also geld mules.
13. Bad day for sowing: good for planting.
14. Good for the birth of females, for taming sheep, cattle, mules, dog. This day broach the cask. Above all a holy day.
15. Unpropitious.
16. Bad day for planting: good for birth of males: not good for girl to be born or to marry.
17. Good for threshing and for cutting timber.
19. Better in the afternoon.
20. On the Great 20th at noon is propitious for birth of a wise man.
24. Best in the morning, worse toward afternoon. A day on which to avoid sorrow.
25. Unpropitious.
27. } On one of these [edd. differ as to which] broach cask; yoke oxen, mules,
29. { horses; launch ship.
30. Inspect works and distribute rations to servants.

²⁷ That of the *Idus* is clear. The word itself may be connected with the Sanscrit *indu* "the moon," or the root *idh*, "to lighten."

Looking back over the path we have just been following, we can see, as perhaps in no other way, what a prodigious rôle has been played by the moon in the origins of society. No wonder that its magical power lasts in the modern world, when it so largely ruled the fate and regulated the actions of mankind for untold millenniums. Try to imagine what primitive mankind would have done had there been no moon to mark the time! The moon supplied more than luck to early societies; it made possible cooperative effort and homogeneous action by enabling men to calculate for a given time and plan ahead so as to bring in line, for common purposes, such as hunt or war, the divergent interests of individuals.²⁸ But what was a blessing to the primitive became a handicap as society developed. For the moon, as we have pointed out, does not fit with anything else in the heavens and a month based upon it was bound to run foul of any other system of time-reckoning. We have already seen how the weeks—probably at first just fractions of the month based on a loose reckoning of the moon's phases—broke loose and ran away, as it were, setting up a career for themselves on the luck of the number. But that was a relatively slight matter. The lunar month still remained as important as before; the very Semites who invented the week being the strongest supporters of the cycle of the moon. The real trouble with the month was not so much to fit the days into it as to fit it into the year. When we come upon this problem, and realize that it is insoluble—at least without the aid of higher mathematics—that moon periods and sun periods do not coincide and that, therefore, we must choose between them, we realize how the moon became a bother rather than a help, by retarding the use of solar time. For, after all, in spite of our negro logic quoted above, the sun is more important than the moon! And it, too, has its cycle, that of the seasons, or the year. We have already seen how the primitive farmer tried to fit his work within this cycle, without actually counting the days or at best counting them in a vague, uncertain fashion. The nomad can gauge his time—and even his distances—by the moon, for he is not planning a sowing-time in order to reap “in due season.” His future is as vague as the horizons of the plains over which he wanders. This is especially true of the desert-dwellers of hot countries, like Arabia, who ordinarily move around and do much of their work by night, in order to avoid the heat of the day; so, as might be expected, we find that even to this day the Bedouins reckon time

²⁸ It also enabled the savage to reckon distance with the primitive counterpart of the modern time-table. The land of the traveler lies so many “moons” away—a form of expression used by nomads in wide range.

by the moon, and the Mohammedan calendars²⁹ bear still this reflex of the desert origins of the thought of the Prophet—to their own disadvantage. The moon is an adequate guide so long as the society has not progressed beyond the pastoral and stock-breeding stage.³⁰ But, when the nomad settles down, and ploughs and sows for the future he must turn to the sun. His society reflects his environment; his social and political arrangements must also in course of time fit the sun as well. And then the moon, which is the outward and visible sign of that inward and invisible Luck of his primitive universe bars the way! It barred it through all antiquity. Even the keen, bold temper of the Greek was halted here, thwarted by the weight of superstition and of antique custom. So that it was not until the days of Julius Cæsar that the great reform was put through for the Mediterranean world and the moon definitely dismissed from its official position as chonometer. From the standpoint of its own history, this reform was also a desecration, as most reforms are. But it was just the final chapter in a process begun when settled life succeeded to that of the ancient hunters, and routine, urged by need, wore through the haze of memory a sense of the extent of the solar cycle. Between a sense of its extent and the exact measurement lay practically the whole history of civilization, for the most learned astronomers of antiquity never knew it exactly; and Cæsar less. Even to-day only astronomers can tell its precise length. Nevertheless, the adoption of the solar year was a part of that great process of secularization which is the major theme of social evolution, that process of the development of rational control in which time, like space, is being won over from the realm of imagination and feeling into that of intelligence—by way of use.

But the adoption of the solar year was not the work of any single epoch. The solar year was not a sudden innovation like the age of steam; nor was it a purely secular period winning its way over the lunar, merely in order to sow wheat on time. It was also a religious cycle, with its festivals of the seasons as well as its dates for ploughing, and the gods and their grace held men to the almanac here as in the case of the moon. We have already spoken of these in deal-

²⁹ Mohammed definitely ordained the lunar unit of time-measurement in the Koran, Sura II., 214. "Concerning the phases of the moon shall they ask thee, so tell them they serve to mark out time to men and the pilgrimage to Mecca." Sura X., 5: "God has set the sun to shine by day and the moon by night, and his ordinances have so arranged it that you by this can know the number of the year and the reckoning of time."

³⁰ Easter, for instance, seems to have developed out of a nomadic feast at the time of the birth of the lambs.

ing with the farmer's calendar; but the fact is too important for us to pass it by in this connection,—since, to emphasize solely the practical advantages of the solar year over the lunar as the reason for its adoption would be an unhistorical injection of the modern point of view into antiquity. We must never forget that luck is the most practical thing in the world—if one believes in it. Hence the reckoning of solar years was also largely a religious matter. The one advantage it had was that it coincided as well with the laws of work as with those of belief.

The one country which led all the others in the adoption of the solar year was Egypt. And it was incomparably in the lead. Already in the fourth or fifth millenium B.C. the year in Egypt consisted of 365 days, and the months ceased to correspond with the movements of the moon and became divisions of solar time—or what the Egyptians imagined was solar time. Twelve months of thirty days each, with five days added at the end, made up the year. Some traces of the old moon cults were left in the calendar, as, for example, the festival on the first and the fifteenth, which apparently corresponded with the old, new, and full-moon festivals. But these indications of the universal primitive outlook were in Egypt quite overshadowed by the cycle of the great Sun-god, the king of heaven, known to the Egyptians as Re, Atum or Horus, with whom the River-god, the life-giving Osiris, was indissolubly bound by the tangle of mythology. But the supernatural calendar really depended, in the most transparent way, upon the natural.³¹

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(To be continued.)

PROFESSOR ADAMS AND THE KNOT OF KNOWLEDGE

IT should have been a trilemma at least which Professor Adams set himself to solve in his recent article,¹ for while it is not exactly clear in what essential historic positions his dilemma consists, and granting that the apparent opposition between realism and subjectivism has been stated correctly, there should still be considered the position of Richard Avenarius, Empirio-Criticism.

³¹ Cf. J. H. Breasted, "The Development of Religion and Thought in Ancient Egypt" (1912), Lecture I. This was the first attempt to apply the Pyramid Texts to the understanding of Egyptian religion.

¹ "The Mind's Knowledge of Reality," George P. Adams, this JOURNAL, Vol. III., page 57.

One wonders a little that a view so clearly different from any mentioned in current debates should be so neglected. Contemptible it certainly is not; and whatever be men's disagreements with Avenarius, they have never despised his ability.

Professor Adams states in a note² that he will later discuss a type of dualistic realism, but he seems to have dualism in mind all the while; indeed, if he be not himself a dualist, many of his expressions are ill chosen, while it is clear that he announces himself as an idealist of the absolute type and his defense of a *priorism* would certainly indicate it.

The first (apparent) form of the dilemma³ is that "unless at some place the mind faces real being directly and immediately and knows that this, its possession, is indeed knowledge, then no knowledge can ever be acquired." Again:⁴ "In order that knowledge shall exist, some direct contact of mind and real world there must be in order to teach the mind what it means to be real. At some place there must be some knowledge which is positive and direct, standing on its own feet. *So much we accept from realism.*" The other horn of the dilemma seems to be pure subjectivism which needs no further definition; but one reader at least is confused in his mind, after a careful study of the article, to determine whether or no Professor Adams describes both of the horns of his dilemma as immediacy,⁵ whereas the first horn would seem to imply a plain dualism.

There does not seem to me to be a real dilemma here. We are not shut up to one view or the other of these two. There are many variants, even without seeking refuge in the bosom of the absolute. Moreover it appears to be pure dogmatism to say that knowledge must have a beginning and that that beginning must be knowledge!

Three types of knowledge are cited to illustrate the dilemma, "*i. e.*, knowledge of past time, of other minds, and of the grouping or classification of objects in our world."⁶ The author finds satisfactory evidence of a *priority* in the first and third, but is distressed about the second. It is impossible to accept⁷ "the paradoxical thesis that I may have as direct an experience of another's mind as of my own." Why "paradoxical"? Surely it is accepted and obvious that knowledge of my mind as *mine* is coincident with the recognition of the mind of another; and, if I know both, they are both known directly. The Cartesian *cogito* is surely to be found only in the

² *Op. cit.*, page 63.

³ *Ibid.*, page 57.

⁴ *Ibid.*, page 62. Italics mine.

⁵ *Ibid.*, page 61.

⁶ *Ibid.*, page 58.

⁷ *Ibid.*, page 59.

scrap-heap to-day. The ego-centric situation is indeed fundamental, but the ego-socius experience, knowledge, is equally fundamental and the subject-object relation, and a thousand others.

I am not concerned with Professor Adams's main thesis, which is a defense of a *priorism*. There is no need to seek that *dernier ressort* until Avenarianism has at least been tried. Within the limits of this brief protest I can only insist dogmatically upon the points at which Avenarianism differs from neutral (monistic) realism (or, for that matter, from dualistic realism) and also from subjectivism. A full account of this philosophy exists elsewhere, though not generally accessible.⁸

First, then, for Avenarius experience does not imply an experiencer. The word *Erfahrung* is inevitably retained in his philosophy, but he has clearly defended it from the charge of such implication.⁹ Quarrel with his use of the word if you will; his meaning is clear.

Second, there is no priority, logical or temporal, of any self. Experience is a unitary whole which is gradually differentiated into the manifold which we, in sophistication, call the world. In this differentiation there arises a class of beings to which we attribute the power of *knowing* things; but this is, after all, a usage of popular speech only. Knowledge is a fact among other facts—like a mountain or blue or sweet or unpleasant; and the epistemological situation is itself a fact which, within its own bounds, may be split up into knower and known, but which, considered as a whole, is simply *there*. The simplest type of knowledge does not know that it is knowledge. It is not an ingrowing consciousness! When knowledge itself becomes the object of knowledge there is further sophistication or complexity, but no Cartesian dualism.

Third, all things get their denotation and then their characterization through contrast: and nothing develops alone.

Fourth, the self is also object of experience, but, I insist, following Avenarius, not to an experiencer. It simply is; and it is not some transcendental unity of apperception, it is not the subject of *cogito*, it is rather an *order of things* which may and do stand in other orders and form parts of other selves. The self, for Avenarius, is but the *content* of the manifold expressions, utterances (*Aussagen*) of the organism reacting to external stimuli. Now a part of that contact may be (*is*, for me now writing) the fountain pen which I use which is equally an integral part of the furniture of my desk and may become a part of your *self*.

⁸ "The Philosophy of Richard Avenarius: The Nature of Cognition in a Philosophy of Pure Experience"—my own doctoral thesis in the Harvard Library.

⁹ "Der Menschliche Weltbegriff," Paragraph 6.

Fifth, for Avenarius the ontological problem of the stuff of the universe does not exist. There is no one stuff. That stuff is whatever it is; and what is now mental may become physical, and *vice versa*.

And lastly, all things may be considered to be a function of time and space.

I have never studied any philosophy to which valid exception could not be taken; but none of any importance has failed to contribute some vision of the eventual truth. This is so of Avenarianism. Professor Montague, in the "New Realism," criticizing pan-psychism, has incidentally dealt a heavy blow to Avenarianism; but that is another story.

I insist upon my Trilemma.

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REVIEWS AND ABSTRACTS OF LITERATURE

A History of Philosophy. FRANK THILLY. New York: Henry Holt and Company. 1914. xvi + 612.

One of the distinguishing merits of this new general history lies in its apportionment of space among the periods of European thought. Most of the manuals in common use are excellently calculated to give the student or general reader the impression that philosophical thought in the Occident was a vein that "petered out" about 1860, if not, indeed, in 1830 or at a yet earlier date. An examination of the relative amount of space given to contemporary philosophy in six of the best of the other one-volume histories shows a maximum of two per cent., and in most of the books merely "traces"; while the entire record of post-Kantian reflection fills only from nine to nineteen per cent. of the contents of these works. In Professor Thilly's volume the period since Kant receives about twenty-eight per cent. of the whole space; and some fifty pages, or eight per cent., are devoted to a skilfully compact exposition of recent and contemporary tendencies. There are, no doubt, those who will see in this a too generous estimate of the importance of the moderns. But a study of the history of philosophy which leaves the student *planté là* amid the philosophic problems of his grandparents, instead of introducing him to the thoughts and questionings of his own age, is surely an especially bad instance of that *semerophobia*, or terror of the contemporaneous, which is one of the infirmities of the academic mind. Earlier philosophy is a good deal more than an introduction to recent philosophy, but it is that among other things, and this aspect of it is one which especially needs to be emphasized; scarcely anything could be worse for the study than that it should have the appearance of being essentially a branch of archeology. It is to be hoped that Professor Thilly's example in this

respect will be generally followed hereafter by writers of books of the same type.

The author's sense of proportion does not, however, stand him in quite so good stead in the matter of biographies of philosophers. He gives, on the whole, rather less biographical information and personal characterization than is desirable in a text-book; and here the latter-day worthies seem to me to get more than their share of attention. It is not clear, for example, that the story of T. H. Green's life needed to be told thrice as fully as Hobbes's, nor that Herbert Spencer's not wildly dramatic career required six times the space given to the strange and romantic history of that incarnation of the enthusiasms of the late Renaissance, Giordano Bruno. The absolutism of Hobbes's political theory was so largely a consequence of the reaction of his temperament upon the ardors and disorders of his time, that to leave that temperament unindicated is to leave much of his philosophy unexplained. It is, again, a pity that the reader should not learn that Locke once practised as a physician and was a friend and disciple of Sydenham, and thus brought to philosophy—after a century in which the mathematical sciences had furnished the models of all knowledge—the temper of a worker in an applied and empirical, and, indeed, a highly empiric, science; and that he thereby helped to make a certain pose of intellectual modesty and speculative diffidence the fashion for a century. A fuller introduction of facts of this sort would, I think, have added a good deal to the interest as well as to the intelligibility of the history of doctrines, to expounding which Professor Thilly devotes himself a little too exclusively.

The qualities at which the author evidently has chiefly aimed in his exposition are fidelity and fullness. Of criticism or even interpretation there is, as a rule, little; what we are given, for the most part, is a series of careful outlines of the reasonings in the principal writings of the greater philosophers, with shorter summaries of the doctrines of lesser thinkers, and rather brief connecting generalizations about the tendencies of periods and the relations of schools to one another. This is what most teachers desiderate in a text-book to be used as a basis for class-room commentary or discussion; and for such use the volume seems in many respects to be exceptionally well adapted. Yet I feel that Professor Thilly sometimes carries his pursuit of the historian's virtue of colorless fidelity to excess. There is too little throwing into relief of the more significant features of a system; the drawing sometimes lacks perspective. And, though the author frequently shows no small skill in abridgment, his summaries at times fall into a "crowded note-book style," and his paragraphs become successions of logically unrelated propositions. In his outlines he employs, without indicating which is which, partly his own phraseology, partly that of the philosopher whom he is expounding. The effect is sometimes rather queer, when the style shifts without warning, and in successive sentences, from the archaic diction of some seventeenth- or eighteenth-century writer to the very modern and colloquial manner of the author (*e. g.*, p. 266). On the other hand, the reader unfamiliar with

the originals will at times, in the absence of quotation-marks, be unable to judge how much is direct citation, how much is paraphrase, and how much is commentary. The student, surely, should be enabled to know whose words, as well as whose thoughts, he is reading. It would have been well, also, to give references for the passages summarized. But one's chief regret is that the author has been led, apparently by an excess of scruple, to present his subject in so dephlogisticated a manner. It will be with satisfaction and perhaps a sense of relief that his readers will find in the concluding pages—which are a reprint of part of the author's address as President of the American Philosophical Association in 1912—Professor Thilly presenting his own ideas with characteristic sanity and felicity.

There naturally occur in a work covering so much ground historical statements which are either erroneous or debatable. I mention some such which I have chanced to notice. It is at least misleading to say that in Leibniz's view "the universe is governed by mathematical and logical principles and the demonstrative method the true method of philosophy" (366), that "the universe is a mathematical-logical system" (375), or that "there is the same necessity in the real universe as there is in the logical system" (279). One of the facts the student most needs to understand about Leibniz is that he differed from Spinoza precisely in repudiating this view, in professedly recognizing a factor of contingency in the universe. Thilly himself, indeed, contradicts (372-3) and in that sense corrects his own statement; but this hardly offsets the triple iteration of the error. It is not made clear, either, that Leibniz regarded "the principle of sufficient reason" as possessing only a moral or practical, not a demonstrative, certainty; the contrary, indeed, is strongly suggested (379). The distinction between *vérités éternelles* and *vérités de fait* is nowhere quite definitely put; merely as a piece of philosophical terminology it is the sort of a thing with which the reader might expect to be made acquainted. Leibniz is represented (p. 371) as having been both an animal-culst and an ovist—which he could scarcely have been without absurdity. Again, the account given of Leibniz's doctrine of the preestablished harmony, and of its relation to occasionalism, seems to me likely both to perplex and mislead the uninstructed reader. It seems to imply (372) that Leibniz did not use the celebrated clock-simile, and that "the occasionalistic doctrine" denied the preestablished harmony of mind and body; while an earlier page declares (289) that Geulinx taught that: "Our volitions are not the occasion for creating movements, nor movements the occasion for creating ideas, by a special act of God. Nor did God preestablish the harmony between body and soul." How, the reflective reader will naturally ask, can a theistic repudiator of interactionism conceivably have denied *both* the preestablished harmony of mind and body, and special divine action correlating them? From the two passages together it would be difficult, I suspect, for any one to gather the essential historical facts of the case, namely, that Geulinx affirmed a divinely preestablished harmony of the two substances; that he used, though he

did not invent, the watchmaker analogy to illustrate this conception; and that Leibniz very likely took over both the doctrine and the illustration from him.

In the account of Cartesianism there is no explanation of the "vortices" and no reference to the interesting hints of cosmic evolutionism in Descartes. Vico is unmentioned. Kant's solution of the first two antinomies is misapprehended. It is not true that he held, in the case of these mathematical antinomies, that "the antithesis holds for the phenomenal world and the thesis for the noumenal world" and that "the true world may have had a beginning." His solution was that both thesis and antithesis are false with respect to the "phenomenal world"; while, of course, the "noumenal world," not being in space or time at all, is not subject to antinomies involving the notions of space and time. Professor Thilly has confused the solution of the dynamic with that of the mathematical antinomies. It is misleading, also, to say (397) that for Kant "the contradictory of a synthetic judgment [*a priori*] must be unthinkable." Nominally, at least, this was precisely what Kant did *not* mean by a synthetic judgment; such judgments could not be justified merely by the principle of contradiction, and it was for that reason that they needed to be vindicated by a proof that certain judgments of this class express "conditions of the possibility of experience." It is true, however, that Kant's attempted proofs of this last can usually be shown by analysis to fall back ultimately upon the argument from the inconceivability of the opposite. The reference to the "Fable of the Bees" is too brief to be illuminating; the first thing to make clear about Mandeville is that he is the classic representative of the economic "fallacy of luxury." Berzelius (who died in 1848, and whose principal work began to appear in 1808) and A. von Humboldt (whose "Kosmos" was published in 1845) are misplaced among the representatives of the natural science of "the age of the Enlightenment." The present reviewer may perhaps be pardoned for mentioning that his attempts to clear up several chapters in the history of the doctrines of cosmic and organic evolution have apparently not been utilized by Thilly; and that, accordingly, such account of this important matter as is given appears to the reviewer to be both incomplete and in several respects erroneous.

Some details open to criticism may also be noted in the account of ancient philosophy. No mention is made of the place held by the term *φύσις* in the philosophy of the pre-Socratics, of the disagreements among historians as to the meaning which this term had for those cosmologists, or of the influence of their use of the word upon the initial formulation of the problem of moral philosophy by the early Sophists. The fact that the objectively valid in the realm of morals came, largely through this historical accident, to be defined as that which is right "by nature," is on the whole the most pregnant circumstance in the history of ethics. Professor Thilly adopts the very questionable view that Protagoras's *homo-mensura tenet* meant that "the *individual* is a law unto himself in matters of knowledge," and fails to recognize in this great thinker the precursor

of modern idealism. The emphasis upon *αὐτάρκεια* in the ethical temper and teaching of Socrates is not noted; and consequently the influence of this Socratic conception upon the dialectic of Plato's doctrine of the nature of the Good is overlooked, and the entire point of the Cynic ethics is missed (58).

It is perhaps scarcely fair that a critic should complain because an author has not produced a work wholly different in type and scope from anything which he intended to produce. The present volume, certainly, is a good example—possessing several special and substantial merits of its own—of a sort of book which is not only legitimate, but needful. Yet I can not forbear to express some regret that Professor Thilly has employed his learning and his gift for clear exposition in the production of a history which adheres so closely, in its general outlines and its method of presenting the material, to the conventional type. Of books of this sort we now, at least, have about enough; and meanwhile there are two kinds of work in the historiography of European thought for which there is a crying need. The first is a *grundlegend* study of a number of significant but neglected chapters in the history of philosophy itself, in the history of those scientific hypotheses and categories which have influenced philosophy, and in the history of the influence of philosophical ideas upon scientific tendencies, literary fashions, political and social theories and religious movements. A good deal of the history of philosophy as usually given us is, as I have once before remarked in these pages, composed of *mensonges convenus*. The customary divisions, emphases, correlations, evaluations and generalizations, in the treatment of the subject, were largely “made in Germany” between 1780 and 1830, a half-century when philosophers were peculiarly deficient in the sense for objective historical fact, and one which was dominated by philosophical preconceptions no longer generally accepted. More of these conventional errors have already been corrected than Professor Thilly seems to realize; but there is still need for a large amount of investigation, of a sort combining careful historical method with philosophical penetration, in the establishment of fundamental facts and in the testing and revision of the once commonplace interpretations and estimates and generalizations. The field is ripe for the harvest; but in America at least, laborers having the qualifications and the genuine historical interests of the author of this volume are few.

The other need is for a freer use, even in general handbooks, of other methods of presenting the history of European thought than that to which Professor Thilly has adhered. For purposes of philosophical as well as of historical instruction, surely the least illuminating of all methods is the presentation of systems, one after another in the chronological order of their publication, as solid, ready-made, unanatomized chunks of doctrine. Political history written upon such a plan would consist chiefly of a series of biographies of individual statesmen, monarchs and generals. For the unity of a system is usually a primarily biographical unity. A given philosopher happened, often for reasons interesting enough to the

student of human nature, to combine ideas, usually by the exercise of some violence, into a degree of systematic connection. To know what these combinations were and why they were, is a part of the business of the student of the history of philosophy. But it is hardly the most important part of it. More important for him is it to become intrigued by specific problems and to understand connectedly the various attempts made, by different thinkers with various preconceptions and in diverse historical situations, to solve those problems. The chief methodological question for the writer of a history of philosophy is the question of the *units* with which he is primarily to deal; and a problem, within the limits of a well-marked period, is a more suitable unit than a system. The significant relations between the reasonings of a number of philosophers can be far more surely brought out by the one way of grouping the material than by the other; and the relations between the reasonings of a number of philosophers upon the same problem are usually more instructive than the relations between the reasonings of the same philosopher upon a number of problems. It is a pity, therefore, that the general plan exemplified by Windelband's history has not been more frequently followed. There is real room, I think, for an independently written, briefer, and simpler book on this plan. A third type of unit, however, is possible, namely, the separate ideas, the dialectical *motifs*, which are the primary and active elements of philosophical thought, which recur again and again, more or less disguised, in the most diverse combinations and in connection with the discussion of all manner of problems, and without an intimate acquaintance with which the student can but imperfectly understand the true inwardness of any system. No general history has, I believe, yet been written which takes these as its primary units; not altogether unfortunately, perhaps, since much remains to be done in the discrimination, enumeration, and examination of these elemental components of many philosophies. But it is towards such a *history of ideas* as such, as it seems to me, that we now have most need to direct our efforts. The whole conception of such a history, however, needs much more explanation and justification than it can properly receive in this review. I shall hope for an early opportunity for an attempt to set it forth more adequately. Meanwhile, it ought to be said that Professor Thilly has probably served a more widely felt need than if he had devoted his effort to one of these other and more neglected historical undertakings, to the possibility of which I have taken this occasion to call attention.

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Rudolf Eucken: His Philosophy and Influence. MEYRICK BOOTH. New York: Charles Scribner's Sons. Pp. xxviii + 207.

This volume by the translator of Eucken's "Main Currents of Modern Thought" is well described in the preface as "an attempt to provide a popular account of a philosophy which is playing a leading part in shaping the thought and life of the modern world. It has been my endeavor

to avoid technical philosophical language, and to treat the subject throughout in such a fashion as to appeal to those who have made no special study of philosophy or theology."

The book consists of twelve chapters, the first five being expository in character, while the remainder of the volume seeks to apply the principles of Eucken's philosophy to some of the central problems, social, educational, and religious, of modern life and thought. The book is written in a clear and dignified style throughout, and it will doubtless prove interesting and helpful to many to whom the ponderous works of Eucken himself would prove both difficult and tedious. It is only natural, however, that the characteristic which qualifies the value of Eucken's own books in the mind of the reader who insists upon reducing his philosophy to the recognizable terms and data of every-day and scientific experience, the addiction to the use of large and vague concepts which are nowhere subjected to careful analysis, should reappear in an exposition like the present one, and similarly detract from its value as a contribution to scholarship. Phrases like "the spiritual life," "the spiritual world," "spiritual values," and so on, appear on almost every page. The contrast between nature and spirit, we are told, runs throughout the whole of Eucken's philosophy. "Is nature (that is, the world of matter seen in the light of science) the true basis of reality, of which spirit, if it be allowed to exist at all, is a by-product? Or is spirit the source and fundament of all reality, nature being ultimately dependent upon an invisible world? This is the great alternative" (pp. xi-xii).

But if the whole of a philosophy is to be built around the antithesis of nature and spirit, if its central purpose is to establish the "independent existence" and the "supremacy of the spiritual world," it would seem to be a matter of first-rate importance to undertake a systematic analysis of the concepts in question; but, in spite of repeated attempts on Mr. Booth's part, his success in clearing up the meaning of these phrases is not much greater than attends the efforts of Eucken himself through many labored volumes. The writer has searched the present book in vain (as he has the pages of Eucken's own works) for a single or unambiguous meaning of the term "spiritual life," the existence and independence of which it is held to be the paramount duty of philosophy to establish. The spiritual life seems in places to mean nothing more than the psychical life, whose independent existence is asserted as against theories of materialism and epiphenomenalism; sometimes it seems to stand for the formal or rational character of experience; sometimes for a formative principle, a sort of Kantian transcendental self, which is responsible for the organization which experience presents; elsewhere an unknown psychic medium is invoked to account for the unity of consciousness, since this unity can not be explained by the brain (on the ground that the nerves entering the brain do not run together in a common center!); sometimes it figures as a personal activity, "the very core of human personality," while at other times it appears as a transcendental power or intelligence which is responsible for the telic movements of nature and history, something "closely

analogous to the invisible and personally conducted network of communications which directs and unifies an army," an active, creative principle behind the whole universe, an "independent, self-active, purposive, personal life"; occasionally it seems to stand for the realm of values, or again for a moral excellence of character which can be achieved only by a new birth; then again the concept expands so as to include the sciences, "since they are a spiritualization of nature"; and so on, in a bewildering series of transformations. "It is by no means easy," the author confesses, "for those who are not thoroughly familiar with Eucken's thought to form a clear conception of the spiritual life as he understands it. As is usually the case with great thinkers, his concepts are capable of being interpreted in somewhat varying fashion according to the individual peculiarities of his readers." With this judgment (barring, perhaps, the rather questionable criterion of a great thinker) most readers will likely find themselves in hearty agreement. It is no small thing to say for Mr. Booth's book that it has probably made Eucken's philosophy as clear as the subject permits.

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JOURNALS AND NEW BOOKS

CIENCIA TOMISTA. January-February, 1915. *La profecía de Jeremías y los años de la cautividad* (pp. 353-374): ALBERTO COLUNGA.—The length of the Babylonian captivity according to the prophecies of Jeremiah. *El "Discurso sobre el Método" de la filosofía católica* (pp. 375-388): SABINO M. LOZANO.—While modern secular philosophy has produced no work comparable to Descartes's "Discours" and Kant's "Kritik," Catholic philosophy has two such methodological treatises, namely, the encyclical *Aeterni Patris* of Leo XIII., and the "*Motu proprio*" *Doctoris Angelici* of Pius X. *La doctrina sobre el pecado original en la "Summa contra Gentiles"* (pp. 389-400): RAYMOND M. MARTIN.—An introductory study containing the analysis and exposition of Aquinas's doctrine concerning original sin. *Cuestiones místicas*, §II. (pp. 401-419): JUAN G. ARINTERO.—Divine contemplation is not God's favor *gratis data*, but a divine gift exclusively bestowed on the righteous. *Boletín de filosofía. Metafísica; Trabajos de introducción*. Juan Zaragucta, *Introducción general á la filosofía*. William James, *Introduction à la philosophie* (French translation). H. Petitot, *Introduction à la philosophie traditionnelle*. T. Richard, *Introduction à l'étude de la scolastique.—Concepto de la metafísica*. Charles Sentroul, *Kant et Aristote*: JOSÉ CUERVO. *Boletín de pedagogía*: MARINO VEA-MURGUIA. *De derecho eclesiástico*: E. COLUNGA. *Crónicas científico-sociales. Revista de revistas. Bibliografía*.

Klemm, Otto. *A History of Psychology*. Translated by Emil Carl Wilm and Rudolf Pintner. New York, Chicago, and Boston: Charles Scribner's Sons. 1914. Pp. xiv + 380.

- Kulpe, Oswald. *Die Philosophie der Gegenwart in Deutschland*. Leipzig und Berlin: Verlag von B. G. Teubner. 1914. Pp. 152. 1.25 M.
- McNair, George Hastings. *A Class Room Logic: Deductive and Inductive*. Nyack, N. Y.: The Ethlas Press. 1914. Pp. xv + 500.
- Polak, S., and Quilter, H. C. *The Teaching of Drawing*. Baltimore: Warwick and York. Pp. viii + 168. 85 cents.
- Varisco, Barnardino. *Know Thyself*. Tr. by Guglielmo Salvadori. London: George Allen and Unwin. 1915. Pp. xxix + 327. \$2.75. New York: The Macmillan Company.

NOTES AND NEWS

MR. WILLIAM HARPER DAVIS, of Philadelphia, one-time assistant in psychology at Columbia University and instructor and professor of philosophy and psychology at Lehigh University, Secretary of the American Psychological Association, etc., who has latterly been engaged in business, in editorial work and publishing, has accepted the position of Librarian to the Public Service Corporation of New Jersey. His address after September 1 will be the Company's offices, Newark, New Jersey.

DR. GEORGE SARTON, editor of *Isis*, who was compelled to leave Belgium with his family on account of the war, has accepted a lectureship at George Washington University. Dr. Sarton will lecture on the history of science. At the close of the war, it is his intention to return to Belgium and resume the publication of *Isis*.

PROFESSOR HOFFDING, of Copenhagen, has recently received an invitation from Glasgow University to give a series of lectures on religious philosophy during the next two winter sessions.

PROFESSOR JAMES ROWLAND ANGELL, of the University of Chicago, has completed his series of six lectures on "Non-Conscious Factors in Mental Development" at Columbia University.

PROFESSOR LILLIEN J. MARTIN, of Stanford University, has undertaken the chairmanship of the committee of the American Psychological Association appointed to arrange for and conduct the programme of psychology to be held at San Francisco during the first week of August. The committee otherwise remains as previously announced.

PROFESSOR TITCHENER has announced that, owing to the international composition of the judging committee, the award of the prize in psychophysics¹ must be postponed until the conclusion of the present war.

PROFESSOR DANIEL STARCH, of the University of Wisconsin, will give courses in educational measurements at the University of Washington, Seattle, during the coming summer session.

¹ See this JOURNAL, Volume XI, page 27.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

CONVENTIONAL ECONOMICS AND A HUMAN VALUATION¹

I

THE outstanding fact about the science of economics, as traditionally developed and at present largely pursued, is that it is incapable of making a human valuation of the goods and processes with which it deals. Not only is it incapable of so doing; but it frankly makes no pretense to the undertaking. This, doubtless, is the more surprising to the lay reader, who, recognizing the commanding place held in life by the matters with which economic science deals, is led to believe that a valuation of them in terms of human welfare is a wholly fundamental desideratum. The modern economist, however, is perfectly clear about his position. Economics is a science descriptive, not evaluative, of economic facts and relationships. It seeks to know how the industrial processes take place, what forces of motive and interest are at work, how they act and interact to fashion the complex mechanism of industrial and business life. Such a purely descriptive analysis, the economist believes, is highly valuable. Before we can judge with assurance what the economic processes ought to be, it is essential that we know with some precision what they actually are.

In pursuance of his purely descriptive endeavor, the economist carefully divests certain basic concepts, which he employs, of all save the most broadly evaluative connotation. These are the concepts of utility, cost, and value. As humanistically conceived, utility connotes usefulness, adaptation to an end which makes for human welfare. Whiskey, for example, has utility when it revives a stricken man; it can scarcely be said to have utility when it plunges a man into sodden drunkenness. A stick of dynamite has utility when it blasts rocks; it can scarcely be said to have utility when it is used to blow up a houseful of innocent people. In the broad human meaning of the term, in short, utility attaches to all those things and relations that stand on the credit side of human welfare.

¹A review of J. A. Hobson's "Work and Wealth: A Human Valuation." New York: The Macmillan Company. 1914. Pp. xvi + 367.

On the other hand, from the same human point of view, cost attaches to all those things and relations that stand on the debit side of human welfare. Excessive toil, for example, involves so much of cost to the muscular and nervous system; overeating and drinking involve so much of cost to the digestive organs.

Nothing is more necessary to an understanding of the scope of economics and its bearing upon our large human issues than the realization that the meanings above outlined are not those which economists assign when they use these apparently evaluative terms. "The utility of a thing to a person at a time," says Marshall,² "is measured by the extent to which it satisfies his wants. And wants are here reckoned quantitatively, *i. e.*, with regard to their volume and intensity; they are not reckoned quantitatively according to any ethical or prudential standard." From the economic point of view, in short, as against the humanistic point of view, the whiskey has just as legitimate claim to utility in the case of drunkenness as of medical aid. What determines economic utility, in brief, is the power to satisfy some human want. The want may be good or bad for the individual or society. This, though of consequence to the humanist, is of no consequence to the economist. "These qualities in economic goods which satisfy human wants . . . must not be confounded with usefulness; for it is perfectly possible for a commodity to possess utility without being useful. A diamond pin may not be useful, but it may satisfy one's desire for show. In economics the word *utility* signifies the presence of some want-satisfying quality."³ In the determination of utility the individual consumer is the final judge. "The fact that [the consumer] is willing to give up something in order to procure an article proves once and for all that for him it has utility,—it fills a want."⁴

It follows that all consumable or usable commodities, all commodities, in fact, for which there is in any sense a demand, are utilities. From which it likewise follows that according to economic understanding, disutility does not exist in the realm of commodities.

On the other hand, disutility, or cost, is assigned to all those processes which serve the satisfaction of wants. The labor expended in producing or in manufacturing the goods which satisfy wants is understood by the economist to be the exact antithesis of a utility: it is in every sense and in all cases "cost." "The exertions," says Marshall,⁵ "of all the different kinds of labor that are directly or indirectly involved in making [the commodity]; together with the

² "Principles of Economics," Vol. I., page 167.

³ Burch and Nearing, "Elements of Economics," page 24.

⁴ Taussig, "Principles of Economics," Vol. I., page 120.

⁵ "Principles," Vol. I., page 418.

abstinences or rather the waitings required for saving the capital used in making it: all these efforts and sacrifices together will be called the *real cost of production* of the commodity."

There is no thought here that expenditure of effort may involve *utility* even to the one who makes the effort, as, for example, in the case of the artist; or that sacrifice or waiting may have utility to him who sacrifices or waits, as in the development of forethought, self-control, etc. According to the economic meaning all sacrifices whether of labor or time count equally as costs.

We note, thus, a very pronounced contrast between the economic and the human understanding of these basic concepts. According to the economist all goods (commodities) are utilities; all efforts are costs. According to the humanist not all goods are utilities; and not all efforts are costs: some economic costs have no human costs attached to them; while some economic utilities involve decided human costs.

The divergence of economic analysis from humanistic valuation is exhibited most sharply, however, in the contrast between the economic and the humanistic meaning of "value." According to Seager value has two meanings in economics, subjective and objective. In the subjective meaning, value is "the importance which a person ascribes to a unit of good as a condition to the gratification of his wants." The objective meaning of value is value in exchange, "the power of a good to command other goods in exchange for itself." As the second is the meaning almost wholly in use in economic science, little attention need be given to the first. This, however, must be pointed out in passing. Subjective value is wholly variable: the subjective value of a play, for example, is as different in different cases as "the importance which each person ascribes" to this unit of good as a condition to the gratification of his particular wants. Such an unstable and varied view of value is, of course, wholly inadequate from a humanistic point of view. What, we ask, is the real value of a play? Does it stand on the credit or the debit side of human welfare? When we pass to objective values, the elements of variability and diversity indeed disappear, but an element of externality takes their place, which is equally at variance with a humanistic point of view. Value in exchange is measured by dollars and cents. A book costs a dollar; a burglar's jimmy costs a dollar. From the point of view of *economic* value—value in exchange—they are equal, for each "good" has precisely the same power which the other has to "command other goods in exchange for itself."

"It is no concern of ours," says Hobson, "to criticise this attitude in the sense of condemnation. But it is important to realize that no progress of psychological analysis will enable economic science to supply a human valuation of industry so long as all human

functions involved in economic processes are measured, assessed and valued according to their bearing upon the production of a 'wealth' which has no directly assignable relation to human welfare, but is estimated by a purely monetary measure."⁶

Whether economics is to transform itself by a humanizing of its basic concepts, or whether it is to continue to restrict itself to its narrower and more neutral field of analysis, is not now our question. We are interested merely to point out that the current belief that economic science is the last word in the evaluation of economic processes and relations is a profound and misleading error, an error for which the more accurate economists are themselves not to blame. Economic science, as traditionally developed, is at best only a very useful, indeed, in a number of respects an indispensable, propædæutic to economic valuation. After the neutral analyses of *descriptive* economic science, in short, must come the humanistic analyses of an *evaluative* economic science.

II

In developing its evaluative aspects economics will attend to the same fundamental processes of production, distribution, and consumption and to the same basic concepts of utility, cost, and value. But inasmuch as its understanding of these concepts will have deepened and broadened, its analyses of the processes of production, distribution, and consumption will undergo marked change. In Mr. Hobson's latest book, cited above, a very notable and exceedingly suggestive attempt is made to place economics firmly upon a humanistic basis. The following pages trace in broad outlines the course of his argument.

A human evaluation of economic goods and processes will, in contrast with the conventional acceptance, define "utility" as that which supports or adds to human welfare; "cost" as that which undermines or subtracts from human welfare; "value" as the ultimate balance of utility and cost from the point of view of the best ordering of human life.

Applying such interpretations of utility, cost, and value to the processes of production, distribution, and consumption, we note this exceedingly significant fact, that not all goods, that is, consumables, are utilities, and not all efforts (production-factors) are costs. Cost, in brief, belongs as properly as utility upon the side of consumptive enjoyment; while utility belongs as properly as cost on the side of productive effort. This, of course, turns the ordinary economics upside down.

Confining ourselves in the first place to the process of produc-

⁶ *Ibid.*, page 8.

tive effort, it is obvious that not all efforts of labor count as so much to the human good. The creative work of the artist, for example, is a perpetual joy. It is more to him than the goods which he consumes. Indeed in many cases the act of creating is far more fascinating than the contemplation of the finished product. Here, then, is a type of labor which is humanly costless. It is pure utility. The creative artist gets the fullest reward in his work. To add an extrinsic reward which passes beyond his essential needs is, therefore, from this point of view, so much social waste.

Reference to creative work will easily suggest the line which an evaluating analysis must pursue in order to estimate the relative degree of utility and cost as well as the ultimate balance of value involved in the various kinds of productive efforts. Slightly below the wholly creative artist in the pure fascination of the work itself are the scientist and the scholar. In the case of the latter, creative imagination must be harnessed to fact. The pursuit of fact is not all a merry madness. It involves many elements of routine, monotony, patience, perseverance. The work, in short, is not all costless. And yet so triumphantly do the scientific and scholarly interests range above the wearisome labors, that the "cost" aspect of such labors is but slight. Here again there is as much if not more satisfaction of wants in the actual process of working as in the contemplation of the achieved results. Achievement is but the stimulus and the invitation to the joys of further work.

Below the artist and scientist are those who breathe of their spirit, yet who fail of their essential genius; on the one hand the art interpreters,—actors, musicians, critics, readers; on the other hand, the teachers of science and scholarship. There is still a large measure of joy in the work of these who stand thus but a little lower, so large a measure that most of them prefer their nearness to the creative genius of life even at the cost of slighter objective rewards. The teacher puts up, not always gladly, yet resignedly, with a small income; the actor would not forego his economically precarious commerce with his gods for the fattest income of the country squire. The creative spark is but feeble; but it is alight in these ranks; and here again the light is its own reward. The work of these lower ones is full of cost,—toilsome travel, insecure tenures, wearisome learning of lines, or, in the case of the teacher, the reading of examinations, the correction of papers, the attendance upon administrative duties. But, with it all, the fascination outweighs the toilsomeness; and the work shows a clear balance on the side of utility as over against cost.

On practically the same level as the interpreters are the professional men,—physicians, lawyers, dentists, etc. It is noteworthy that

in the high ranks we call them professional men; in the low ranks practitioners, indicating by the latter term a certain accession of the purely repetitive type of labor. The labor of such workers is indeed full of "cost,"—wear and tear of nervous and muscular energy, the exclusion from free creative work, the subordination of personal interests to the needs of patients and clients, etc. But, on the whole, for all the heavy cost involved, there remains a large measure of professional labor that is humanly costless, that stimulates and fascinates and brings happiness.

To enter into all the niceties of an analysis such as the foregoing paragraphs suggest would carry us to a length beyond the purpose of the present paper. It remains but to advert to the two types of effort that are perhaps most widely in evidence—that of the entrepreneur and of the routine worker. In the case of the former, the work, at its high level, may in quality approach very nearly to that both of the creative artist and the scientist and consequently possess much of the fascination that resides in the investigation and the constructive assembling of powers and interests. The great financier is not only a close student of subtle economic relationships; he is likewise an organizer of them into new forms and to new ends. There goes however with this creative activity, in itself costless, the nervous cost of excitement and uncertainty. Great fortunes are made and unmade. A turn of the market may plunge a man to ruin. A failure of crops or a social disturbance may cast into utter disorder plans elaborated with consummate genius. A constant watchfulness, an unremitting concern with the niceties of economic relations tie a man night and day, in season and out of season, to "business." Broader interests tend to become sacrificed, a wider flexibility of mind is lost. "Probably the heaviest human cost, however, is a certain moral callousness and recklessness involved in the financial struggle. For the paper symbols of industrial power, which financiers handle, are so abstract in nature and so remote from the human facts which they direct, that the chain of causation linking stocks and shares with human work and human life is seldom realized."⁷

As we descend from the creative work of the great financier to the more conventional and routine work of business organization, we find an increase in cost through the diminution of the creative factor and the increase of the factor of laborious routine. In many instances, however, this increase in human cost is in large measure counterbalanced by a diminution of the cost which the great financier suffers by reason of his aloofness from the human factor in industry. The smaller entrepreneur is nearer to working men and women and

⁷ *Ibid.*, page 56.

is for that reason less liable to the deadening or the perversion of his human understanding and sympathy.

When we pass from the managerial plane of effort to the plane of routine labor we find, as we are now doubtless prepared to expect, a very large increase in human cost. In one sense, indeed, the laborer is freed from that type of cost which is peculiar to the entrepreneur class—the “risks” of enterprise; but, obviously, this freedom is more than counterbalanced by the more pressing and imminent risk of destitution. The anxiety of the financier has in it an element of sportsman’s hazard; the anxiety of the routine worker has in it little save the fear of the hunted creature. But the heaviest costs of routine labor lie in the four factors of fatigue, monotony, lack of interest, and dependence. Fatigue, we now know, has actual toxic effects upon the physiological structure; monotony dulls the mind and devitalizes the body, awakening an abnormal craving for stimulants to prod on the jaded organism. Lack of vital interest in the work done holds the worker in a relation of utter externality to his labor. His labor, consequently, is not invested with dignity in his own eyes; and he, therefore, as a laborer, likewise lacks dignity in his own eyes. Labor for him is a means to something other than itself—to the money that it brings. Unlike the creative artist, his work is his sacrifice and his degradation; not his glory. Finally, an utter dependence upon the will of others, who direct, divests him of essential claim to respect. He is either weakly resigned or sullenly, but impotently rebellious.

III

It is in this manner that Mr. Hobson indicates the type of analysis which must be made if the “effort” factor in economic processes is to be humanly evaluated. To lump all types of effort together as costs is simply to ignore vital distinctions, distinctions that must be grasped if we are to attain to a clear understanding, on the one hand, of the relation of work to economic reward, and on the other, of the relation of work to human welfare.

There is another covering-up of vital distinctions that must be noted. According to Marshall there is a second type of effort that must figure wholly on the cost side of the economic balance sheet, “the abstinences or rather waitings required for saving . . . capital.” If abstinence and waiting are indeed costs, there would seem to be entire propriety, moral as well as economic, in compensating by economic reward. The institution of interest, apparently, is the social recognition of this fact.

Are the abstinence and waiting involved in the act of saving to be counted as human costs? An analysis of the situation reveals four

types of savers: the rich, who save automatically; the middle class, who save as a matter of forethought and self-control; the middle class, who are induced to save by the lure of interest; and the poor, who save with difficulty and sacrifice.

As to the saving of the rich, there is involved no actual abstinence or waiting. It is obvious, therefore, that no human cost attaches to such saving; and any economic compensation given to counter-balance the supposed cost is so much needless social waste. As to the middle class who save as a matter of forethought and self-control, saving is simply a means of making a more advantageous outlay of income, spreading its use, that is, over a number of years, instead of consuming it immediately. Saving in this sense is to the advantage of the saver; and again, in so far, involves no real human costs. Such saving would be effected whether interest were offered or not. Interest, therefore, as a reward of costless effort is apparently a social and economic waste.

A more difficult situation presents itself with regard to those of the middle class who save only by reason of the stimulus of interest—the naturally thoughtless and extravagant folk. For such folk to save implies an actual effort of abstinence which may at times amount to the real pain of deprivation. Is such an effort a human cost? Obviously the real cost here is the human recklessness and lack of forethought. If interest is paid, it is paid not as compensation for an actual human cost, but as a bait to lure persons away from a type of indulgence which is itself actual cost.

In all these cases, then, interest is not, properly speaking, a compensation for cost. In the first two cases it is socially needless and wasteful; in the third case (involving, as a matter of fact, only a relatively small proportion of society) it is at best a doubtful lure to the utility-condition of forethought and self-control. The fourth case, however, is strikingly different. The poor person who saves often does so at the cost of life necessities. A family will deny itself nourishing cuts of meat, proper clothing, sufficient fuel, in order to put aside the little weekly amount in the bank. Or it may curtail its recreational and cultural life,—it may give up vacations; it may take the children earlier from school. All these are fundamental human costs. If interest is paid, it is here indeed paid for costs. But here, where alone interest is a payment for human costs, interest apparently, from a humanistic point of view, should not be paid, precisely because it is a stimulus to persons to suffer costs which as a matter of fact ought not to be suffered.

It is obvious, then, how a humanistic as against a purely economic analysis of abstinence and waiting discloses factors in the situation which awaken significant reflections upon one of the most approved

economic practises—the payment of interest. Whether, however, interest is socially justifiable or not is not here the question. Other factors in the situation—risk, stimulation of enterprise, etc.—would have to be discussed before a careful conclusion could be reached. What we are especially concerned to bring out is the thought that the factors—abstinence and waiting—which economic science ranges without discrimination wholly on the cost side of the *economic* ledger belong as a matter of fact in large measure to the opposite side of the *human* ledger.

IV

The foregoing exposition of the method of humanistic analysis of economic processes will enable us to indicate with comparative brevity how the remaining basic issues of economic life are to be attacked:

Over against the processes of production are the processes of consumption. Economic science places these altogether on the utility side of the balance sheet. Shall we accept this as also the judgment of a humanistic valuation; or shall we find that here, too, as in the case of productive effort, the human values differ from what they would seem to be when the considerations are wholly economic?

Three factors are present as determinants of the consumption process: organic needs, commercial pressure, social prestige. The organic needs of bodily and mental growth and vigor are strong enough to call into being a mass of goods whose relation to life is altogether one of utility. The staple foods and textiles, wood, iron, and steel for shelter and transportation, coal, oil, gas, electricity for fuel and light, books containing information about the life processes, etc.—all these are essential to any effective ordering of life; but it is obvious at once that the factors of commercial pressure and social prestige enter to confuse and misdirect the organic issues of life. Where the aim of the manufacturer is not serviceableness, but profit, various interferences with the organic needs as well as stimulation of pseudo-organic needs disclose themselves. Adulteration and deceptive imitation work greater or less harm to the organic processes. All such commodities then must, in proportion to their harmfulness, be placed on the side of cost. But the manufacturer and the vender of commodities may, through various subtle devices of appeal, stimulate cravings that are not only lower, but distinctly anti-organic. Such, for example, are the stimulations of the saloon, the vaudeville house, sensuous music, lurid newspapers. The commercial enterprise has an enormous advantage over the consumer in so far as, with single eye to profit, it can organize widely and persistently campaigns of subtle stimulation which rouse in the unsuspecting and unorganized consumers desires and cravings which would scarcely

have been felt save for this stimulation. In this campaign of subtle stimulation an almost incalculable number of commodities are produced,—posters, placards, pamphlets, pictures, cartoons, newspaper advertisements—not to speak of the actual articles which these are intended to exploit—which are distinctly anti-organic in effect. Not only, then, is a vast portion of production really unproductive, but the commodities, instead of standing, as the economist in his purely neutral account indicates, on the credit side of the human balance, stand unquestionably on the debit side.

But another factor not so commonly recognized plays a large part in diverting production and consumption from organic channels. The craving to be distinguished from one's fellows is doubtless as old as human nature. In primitive society this craving realized itself through exploit; the doer of big things, either in the hunt or war was the great man. In modern days the hunt and battle give but rare opportunity for the display of prowess. A new means of securing distinction is necessary for a civilization of peace. Two principles of distinction have developed, one valuable, the other valueless. Distinction through service—of scholarship, science, art, statesmanship—is for many persons the only type of distinction worth having. Obviously the goods of life brought into being in this effort for distinction are on the credit side of life. But, where the finer ability for serviceable distinction is lacking, another principle of distinction has developed, the distinction of *ability to waste*. The sign of "social" superiority is the ability to possess and consume beyond all organic needs.⁸ Not only does this exhibit itself in the utterly needless expenditures upon household effects, clothing, and caretakers, but it weaves its way subtly through the various activities of those governed by the principle. Thus the socially superior person exhibits his ability to escape all useful labor by indulging largely and expensively in "sports." They are his expression to his fellows of the power triumphantly to waste time and energy. But more deep-reaching is the principle in its effect upon activities that have in them the promise of finer things. Education, for example, to be socially superior must not be useful. It must be "cultural" (in the false meaning of that word) in the sense that it serves no earthly purpose. So in the processes of religion and art, the accepted thing is the useless thing.

It would be a mistake, however, to believe that this principle of triumphant waste exhibits itself only in the life of the socially superior persons. By the law of imitation, the principle runs through all orders of society, so that the poor man cherishes his ornamental chairs or his parlor brie-à-brac with the pride of possessing something that is really unserviceable. It follows, then, that again a well-nigh

⁸ Veblen, T., "The Theory of the Leisure Class," *passim*.

incalculable number of commodities are manufactured and possessed in the spirit of the anti-organic law of conspicuous waste. All such commodities must be placed on the cost side of the human balance sheet.

Summing up, then, we note that just as on the side of production not all effort is cost, so on the side of consumption not all consumption goods count as utility.

V

We are enabled now to formulate a humanistic interpretation of the fundamental economic principle of maximizing utility and minimizing cost. It is obvious that from the standpoint of traditional economic science, the maximization of utility can mean only increased production of consumables, while the minimization of cost can mean only the diminution of effort expended in their production. From the standpoint of a humanistic economics, on the other hand, maximization of utility means on the one hand such an organization of industrial processes that all work done enlists as far as possible the peculiar power and interest of each worker; it means on the other hand such production and distribution of consumption goods as meet most thoroughly the organic needs of those who consume. Minimization of cost signifies *per contra* the elimination as far as possible of such kinds of work as hinder the development of the peculiar power and interest of each worker; it signifies also the elimination of such consumption goods and of such methods of distribution as go counter to true organic needs. In other words, a thoroughly humanized society will see to it that each member (1) is enabled to contribute in accordance with his fundamental power; (2) is enabled to receive in accordance with his fundamental needs.

Such an interpretation at once clarifies the whole distribution problem. Shall men receive in proportion to what they produce? This fails wholly to take account of the two facts: (1) that what is produced may, socially speaking, not be worth producing; and (2) that the production may be carried on in ways injurious to human welfare. Or, again, shall workers receive in proportion to the efforts they expend? Again, the fact is patent that efforts, however laborious and even painful, may be misdirected, while well-directed efforts may be full of stimulus and joy. The only organic principle of distribution, in short, is that which is based wholly on the fundamental needs. Such a principle not only provides against maldistribution—the assigning of less than the needs of individual demands—but it provides likewise against malproduction—the creation of goods that go counter to organic needs. When, moreover, it is recognized, as

properly it must be, that a man's needs include work of a nature to elicit in him his unique powers, the "needs" principle of distribution calls for the complete development in all persons of their essential working powers.

It is apparent, then, how through such a humanizing of the current economic definitions of utility, cost, and value, as Mr. Hobson suggests, a far clearer grasp is made possible of the principles which should govern production, consumption, and distribution; and economics is placed upon a foundation of humanistic values.

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INDIVIDUALITY THROUGH DEMOCRACY¹

I

SO many of the most controverted questions of metaphysics are involved in the subject of individuality that it would be hopeless for me within the limits of such a paper as this to do more than indicate what my own view is with some of the reasons for holding it. But even this is more than I intend to do, since my aim is to show how individuality, assumed to be desirable, can best be attained. My thesis is that it can best be attained through democracy. In the proper places I will define what I mean by democracy.

While, however, I shall not attempt to argue the matter of individuality, there must be some clear indication of the way in which I hold this doctrine. The individual as I understand him is, as nearly as possible, the individual of Professor Warner Fite's acute study, though there are some aspects of his characterization with which I take issue.

The individual, then, is conscious; the more completely conscious the more completely individual. His acts are not "what any one would do" under given circumstances, but what represents *him*. Should he make a present choice from the standpoint of a clear vision of the whole of his personal life, he would express himself in an act so individuated from all eternity that it could be the act of none other but himself. With the emergence of such an individual there appears a new force *inserted* (italics mine) into the economy of the social and the physical world which is in the form of a personal activity, *free* in the sense that it can do what it pleases to do, but is not, therefore, capricious; and finally this individual becomes an end in

¹ Read at the joint meeting of the American and the Western Philosophical Associations at Chicago in December, 1914.

and of itself. "As an end in himself, *not* a means for the ends of others. It makes no difference whether these others be human others, or nature, or God." This formulation is, by Professor Fite himself, contrasted with the views of Dewey and Tufts in their "Ethics" "partly because it represents the most recent and the most explicit consideration of the moral problem from a social standpoint, and partly because it furnishes the best illustration of the ingrained exaggeration of the social in the present state of thought." Now, I think that Professor Fite himself rather suspects that he has been meticulous in singling out this view for criticism, since the impression derived from a study of it for some years and the use of it in classroom is one of a sturdy defense of the right of the individual, although it is made clear that, so far as facts go, rights depend wholly upon the group. But, while Professor Fite may be wrong in classing Dewey and Tufts with those who exalt the state or society at the expense of the individual, the contrast is what I have been seeking; and by far the greater part of mankind is so much dominated by group morality, so much under the influence of religious teaching which condemns self in unmeasured terms, that they hardly dare acknowledge even to themselves that, after all, what they see is self-realization, to find themselves, to do what *they* want to do, not the will of any other.

Yet, is it not rather obvious that all men do seek their own will? As Richard Avenarius has shown, an individuality depends upon two things—an organism having a central nervous system and upon an environment. The organism is stimulated by the environment, it reacts in ways which can more and more be predicted, and there develops a person who is not the organism, but the content of the manifold reactions. This organism's constitution is dependent, so far as human intelligence can say anything, directly and absolutely upon heredity. The personality which emerges is indeed free in that it obeys the law of its own being and no other; it truly does what it wants to do, but is none the less absolutely conditioned by the inescapable character of the organism. No man need fear that he is not an individual. He can not escape being one; but his individuality may be overlaid by group morality, it may be suppressed by some one who is stronger, it may even be abolished by himself in devotion to a master or to a cause.

It is my desire in this paper to make as clear as possible the two points of view regarding the individual. We need not be subtle metaphysicians in order to discuss the question intelligently. We not only now know what individuals are, for this purpose, but we are agreed that the present social order is such that myriads of individualities have no opportunity for self-realization. Only the sentimentalists rejoice that thousands go to their graves as undeveloped as a photographic plate that is broken before being exposed to the light; and

these rejoice because they think that greater value is attained by the subordination of the many to the few.

It would be easy to show that not even a Nietzsche or a Treitzschke is satisfied with any present state of affairs; but we will let that pass. There are two definite views as to the relation of man to the state, to society, or to any group of which he is a member. The first of these I call the Teutonic view. It is the view of Plato in his "Republic" and is unquestionably the view which underlies current morality. It can best be expressed by a quotation from Professor Kuno Francke:² "I verily believe that it is impossible for an American to understand the feelings which a loyal German subject, particularly of the conservative sort, entertains toward the state and its authority. That the state should be anything more than an institution for the protection and safeguarding of the happiness of individuals; that it might be considered as a spiritual collective personality, leading a life of its own, beyond and above the life of individuals; that service for the state, therefore, should be considered as something essentially different from any other kind of useful employment—these are thoughts utterly foreign to the American mind, and very near and dear to the heart of a German."

Professor Fite thinks that Dewey and Tufts share this view because, among other things, Professor Dewey has said,³ "The patriot who dies for his country may find in that devotion his own supreme realization, but none the less the aim of his act is precisely that for which he performs it: the conservation of his nation. He dies *for* his country, not *for* himself." There can be no doubt that the tendency of the writers is to make the life of the group, whatever it may be, of prior importance to the life of the individual. I shall not go further into the controversy.

The second view I call the Anglo-American view, and associate with it the names of John Stuart Mill, Herbert Spencer, and Warner Fite. As a characteristic formulation I give the following words from Spencer:⁴ "The subordination of personal to social welfare is contingent . . . when social antagonisms cease, the need for sacrifice of private claims to public claims ceases also; or rather, there cease to be any public claims at variance with private claims. All along, furtherance of individual lives has been the ultimate end; and if this ultimate end has been postponed to the proximate end of preserving the community's life, it has been so only because this proximate end was instrumental to the ultimate end."

² *Atlantic Monthly*, Nov., 1914, "German Literature and the American Temper."

³ Dewey and Tufts, "Ethics," page 393.

⁴ H. Spencer, "Principles of Ethics," page 134.

The *laissez faire* view of the functions of the state has been pretty well discredited of late years. Some may wonder at the temerity of attempting to revive it. I do not mean to advocate it as it was meant of old. The present tendencies in American political life are all in the direction of state socialism. The numerous public service commissions, boards of control, etc.; the proposed government ownership of railways, telephones, telegraphs, and merchant marine all seem to discredit the conception that government exists solely for the well-being of the individuals within it.

What is our answer to this? It is not difficult to state. As a mere matter of fact it is beyond question true that natural rights are the gift of the state which takes them away without hesitation the moment the authorities conceive the group's welfare to be threatened. Numberless examples of this could be given: let one suffice. The *habeas corpus* act is suspended when martial law is declared. Moreover, one may readily grant that America is tending fast toward state socialism. The Panama Canal Zone is administered in a purely socialistic fashion. But, having granted this much, we have not abandoned the claim that Spencer's view is characteristic of America as well as of England with her old-age pensions, land bills, and the like; for the significant aspect of American and English procedure is that its avowed purpose is to set free multitudes of crushed and outraged individualities. In this it is absolutely at one with socialism. Kirkup in his "History of Socialism" says that the great aim of socialism is to free individuals, not a few, but all. So the two views I have cited stand absolutely opposed to one another. The Teutonic view is essentially aristocratic, as was Plato's in the "Republic"; and by aristocratic I mean simply that the vast majority of citizens were not to be consulted at all. They were to be ruled by the *best*; and those who proposed such a state were to be judges of the best—themselves of course and those who agreed with them. This is the Bourbon and Tory attitude, not in government alone, but in the administering of all sorts of institutions. It thoroughly pervades our educational institutions, and the so-called "Professors' Union" which is about to meet as I read these words in a protest against it. It is also characterized by that greatest fault imputed to prospective socialism, bureaucracy.

The Anglo-American view is essentially democratic. It proposes to exclude nobody. If, in its practical working, especially in matters economic, the *laissez faire* policy of free competition has crushed multitudes beneath the iron law of wages, this needs to be remedied; but not to be remedied with that which is worse than the disease, viz., paternal, autocratic, or aristocratic control. Such a view of the function of the state will be compatible with actions which, formally,

seem to deny its principle. We need not fear formal inconsistencies if fundamentally there is no abandonment of principle.

Now I want to make two claims.

1. The democratic movement has been, so far as history records, a one way movement, steadily in the direction of conferring individual opportunity.

2. Under democracy alone can all individualities have equal opportunity for development.

But, before discussing or elaborating these two claims, it is highly desirable that I should fulfil the promise made earlier, to define democracy. Let me attempt this.

II

Democracy is not a particular form of government, but rather such an organization of society as will give to every individual the opportunity to become himself in the fullest measure which is not incompatible with a like development of all others.

I think that I hear some one objecting—this is circular reasoning, and it is; but it is unavoidable for the simple reason that the democratic movement under all its Protean and ofttimes hideous forms has been simply the embodiment of the claims of the submerged *nine* tenths of humanity. These of the nine tenths have not demanded, as *übermenschen* demand, the fulfilment of *their* interests alone, but they have demanded that all men have equal opportunity. Beneath all the sophistry and bombast of a Rousseau with his evil-smelling personal life, there lay this noble demand for the freeing of all mankind, the demand that there be no privileged classes, whether made up of scholars, rich men, artists, or proletariat. Democracies have, historically, often shown the apotheosis of mediocrity. The democracy of Athens, of which Plato wrote, deserved his contempt; for it was not a *politeia*, but an ochlocracy, a government of the mob. The democracy of Rome was a hideous joke. Neither at Athens nor at Rome was there ever the slightest idea of considering the interests of all. In Athens were the slaves; under Rome, all but Roman citizens—literally citizens of Rome in most cases and practically in all cases—were completely neglected. And even the democratic citizenry was played upon and handled by bosses as adroit as Croker or Murphy, as Hinky Dink or Bath House John.

How many constitutions have been made with high hopes that now at last the truly democratic procedure had been reached! Vain hope of a credulous humanity!—for institutions of every sort are but petrified ideals, they are made to be broken. There will never be a constitution which can guarantee a thoroughgoing democracy.

Read the history of communistic experiments and see how they defeat the ends they were meant to serve.

Yet, if one believe in democracy, it does not follow, from what has just been said, that he must distrust the very machinery of those who work most earnestly for it. He may indeed be skeptical about the near approach of the millennium because of the short ballot, the initiative and referendum, or of equal suffrage. He may be perfectly certain that, even if nation-wide prohibition should be attained, inebriety of some sort might yet be gained by true devotees! But that will not prevent him from working for these ends, if he believes them better than what has been before. He will simply say: "Let us have these new brooms by all means and keep them just so long as they sweep clean. When they cease to sweep clean, throw them away and get others." The trouble with most insurgents is that they are simply standpatters in the tadpole stage. Once their particular shibboleth has been accepted, they become conservative and refuse to recognize any other.

Democracy, properly understood, is not a leveling process, but a process of differentiation. We have long since ceased to believe in that naïve proclamation of our ancestors that men were created equal. We know that by no conceivable process can they be made equal; and the glory of a real democracy would be the setting free of all the manifold talents which are now crushed by the forms and standards of societies aristocratically constituted. Individuality there is, even under tyrannies and oligarchies; for every man is what he is by virtue of two things, his inherited organism and the environment to which he is exposed. The first, the all-important part, is absolutely unchangeable. No truth of modern science is more firmly held by those whose training entitles them to speak, than this. *The essential man can not be changed.* But, instead of letting him struggle on against a frightfully unfavorable environment, instead of crushing him and beating down his peculiar powers, he might be given the chance to develop and make his unique contribution to the world's life.

Leaders there would be because of inequality of endowment: but their leadership need have no sting, need inflict no humiliation upon those led. They could be like the ruling monad of Leibnitz's conception, ruling only because that was their natural place in the necessary scheme of things, not ruling to hurt or to dominate. This, by the way, is the ideal of the profounder socialists who are only democrats with clear vision. They see no difficulty, in an ultimate democracy, along labor lines, in supply and demand, because they believe that were a man to be really free to be himself, he would be self-supporting and the surest support of others at the same time.

And this is the main reason why others should be set free. The self-realization ideal of individualism seems to leave no room for altruism and to make any passion for humanity seem ironical. It is not so.

In the first place, no one doubts that *ego* and *socius* are coordinate. Aristotle long ago discovered that man was a social animal. No one is proposing to have a huge mass of discrete individuals, "like quills upon the fretful porcupine," held together only by the bulk of that exceedingly inert and stupid animal. The individual can be such only as he is contrasted with society. So much is obvious.

But, again, while we may recognize that, in fact, passion for humanity can best be aroused by means of enforced group loyalty, that it has been historically best aroused by means of religious propaganda, it does not at all follow that this way has produced or can produce the most lasting results. The cool—and so-called selfish—recognition that I can not profit by my neighbor's distress will be a more constant guarantee that I will not distress my neighbor, than all the emotion in the world. Individualism does not disregard the neighbor, but it is not illogical enough to claim that it is working on behalf of the neighbor. A practical statesman wishing to gain votes for a war subsidy will do well to arouse passions; but the far-seeing statesman, the dreamer who sees a world in which *he* will not be thwarted, distrusts all measures which set man against man in passion and resentment.

Christianity has done an immeasurable service to the world in proclaiming the worth of every man. It has an intuition of the truth which is reasoned out in Warner Fite's book. But the particular appeal of Christianity is merged to-day in the demand for democracy. As the first adherents of Christianity were the poor, so are the first adherents of democracy—but there is room for the richly endowed in a democracy as there is room for the rich in the church.

III

And now to return to my claims.

Primitive societies, if we may trust Sir Henry Maine and others, have always been communistic, and in them the individual was an unmarked unit. The rights which Rousseau so magniloquently proclaimed—more soberly anticipated by John Locke—have been granted only as their granting made for the stability of the group. Private property, right of free egress from the group, the suffrage in all its forms, last and most important, the right of free speech and unrestricted criticism, have been steadily, if gradually, given and there has never been an essential backward step. There have been tempo-

rary reactions, well illustrated in the history of France in the nineteenth century, but the tide has steadily advanced. The second claim was, that only under a democracy of the type I have sketched can all individualities be realized.

Every form of government gives free play to some type of individuality. Under the Medici in Florence as under Alexander in Russia many men developed surprisingly. Under Elizabeth of England there was the most glorious period of English literature. Under the robber tariff of a few years back we developed our so-called captains of industry. But, under all of these, there lay the great mass of the people with the unused energies of which William James wrote so eloquently. Under these you and I have been hampered. Still, the so-called democracy of the United States, crude as it was, has given to the immigrant a vision of a new heaven and a new earth. In our dissatisfaction with it we forget how much it has had to do with making us possible.

It follows from the very nature of any other *ideal* of government than the democratic that the greater number will never be treated as persons. (The form need not be democratic in the narrower sense. It is obvious that England with her monarchy and sharply defined classes is in many ways vastly more democratic than we are.) And it is a fatal mistake, if we could develop individuality, not to treat every one as a person. One of the most irritating errors of our home life and of the lower grades in schools is the neglect of the personality of children. They are not treated with respect, but they are pampered and spoiled outrageously. John Stuart Mill has shown the educational value of the suffrage. In spite of ballot-selling and kindred evils, the possession of the suffrage has had a noble influence upon the character of large numbers entrusted with it. That is the chief reason for giving it to women. It is not a natural right, for there are no such things; but it is a privilege which the state would do well to bestow upon women for their own good and for the ultimate good of the state.

To treat any member of any company as if he did not count; to disregard him; to refuse him a voice in deliberations or a vote upon measures, is to humiliate him and despise his manhood. And it is done in many ways and in many places other than political. I am not a *laudator temporis acti*; but I seem to read of more earnest longing for political and social and economic equality of opportunity a hundred years ago than now. The sense of personal dignity seems to be lacking in large numbers of men and women. They seem to be satisfied with temporal well-being. They will lick anybody's boots for a consideration; and the man who insists upon being respected is as great a curiosity as the dodo.

Now we have been invited at this meeting to consider the connection between Democracy and Responsibility. The old principle for which our ancestors fought, "No taxation without representation," is of much broader application. There can be no sense of responsibility aroused in men unless they share in that responsibility. Laws imposed upon us by others are always to be broken if the thing can be done with any safety. *The only authority which any man respects all the time, whether there are penalties or not, whether he is watched or not, is the authority of his own will.*

And I know of no way to train that will, to develop that individuality, to furnish that responsibility, except the way of counting every man for what he is worth. Contempt is un wisdom. Neglect of any factor in a community is "worse than a crime; it is a blunder."

The Utilitarian plea for the greatest good of the greatest number sounds democratic, but it is not. It is as aristocratic in principle as Plato's "Republic." It is the curse of modern democracies that they are dominated by majority ideals. While it is true that measures can be carried into effect only by majority rule, there will yet never be real democratic government until the principle of minority representation is recognized.

I would carry the democratic principle and, with it, the development of individuality, into every department of human life. There are many who vote the Democratic ticket and many who shout loudly for the rights of the people, who are autocrats in their own homes and in their business houses.

But now for a programme. What do I propose? Certainly not some new panacea for the ills of the body politic. No, I propose a Fabian policy of waiting—watchfully if you will—and an opportunist policy which will not be afraid of scepters and thrones and will not respect brawn and disorder, but will seize upon any agency which promises to set free the imprisoned energies of men.

It has been said, smartly rather than truly, that Christianity has never been tried. The same type of smart epigram might be applied to democracy; but I resist the temptation. Democracy has been tried and tried successfully, but it has not been tried enough. The disorders from which we suffer in this country are not due, in my judgment, to an excess, but to a lack, of democracy.

No one can seriously claim that, under our present political methods, there is opportunity given for free expression of the wills of the people; but, if it should be said that the vast body of the people are unable to know their wills, that they must be guided by competent leaders, I will only ask that the machinery of government be so

changed as to permit really competent leaders to displace the self-seeking bosses of our present régime.

And I would further point out the need to realize that democracy of a final type can never be reached until autocratic rule is discredited in other realms than the political.

How shall this be brought about? Again I can not present any brilliant scheme which would capture the imagination of thousands. I advocate rather the careful study of democracy, its valid presentation in schools and colleges, an awakening of the spirit of independence and personal dignity. The soul of a nation is, after all, created by its most profound thinkers. The more profound they are, the less will they see the need of haste and temporary expedients, the more will they see that they must simply be true to their own inmost convictions. The rest will follow.

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REVIEWS AND ABSTRACTS OF LITERATURE

Abhandlungen zur Erkenntnistheorie und Gegenstandstheorie. ALEXIUS MEINONG. Der Gesammelten Abhandlungen Zweiter Band. Leipzig: Johann Ambrosius Barth. 1913. Pp. x + 554.

The present volume is the second of a series of three, intended to bring Meinong's scattered articles together in convenient and permanent form. The first volume, already published, contained papers on psychology; the third is to contain papers on "Werttheorie" and on miscellaneous subjects; the present volume contains five papers of a predominantly epistemological character.

The first and longest essay is entitled: "Hume-Studien II: Zur Relationstheorie."¹ The essay serves the threefold purpose of furnishing a historical introduction to the theory of relations, of developing that theory itself in considerable detail, and of vindicating the school of Locke before its German critics (with especial reference to Pfeiderer). As an historical exposition of the views of Locke, Hume, the two Mills, and Herbert Spencer, it is excellent. As a representation of Meinong's own views concerning relations, it is almost entirely obsolete. The essay was written when the author's interests were still primarily psychological; and when he still believed that the problem of relations was a psychological problem. He then held the view that only the psychical is experienced (*erlebt*) and that relations are subjective, being dependent on a comparison of ideas by an act of mind. "Wir haben uns wiederholt überzeugt, dass die Relation kein ansserpsychisches Ding ist; wir haben es mit einem psychi-

¹Originally published in 1882 in the *Proceedings* of the Imperial Academy of Science in Vienna.

sehen Phänomenon zu tun," etc., (p. 155). This view is afterwards expressly repudiated. He had not as yet developed the doctrines that are now thought to be most characteristic, such as the "*Gegenstandstheorie*," the distinction between content (*Inhalt*) and object, the theory of complexes (*Complexionen*), and the theory of "objectives." He has since worked over the entire subject.² All this is brought out very clearly in the admirable notes by E. Mally. Nevertheless, the essay is of great interest to any one interested in relations, if for no other reason, because of its thorough exploration of the problem and its careful attention to detail. As a vindication of Locke the essay is worthy of attention for its defense of what may be called the method of empirical analysis, a method to which in this generalized form Meinong has consistently adhered. The concluding pages of the essay constitute a plea, not only for empiricism, but for constructive philosophical research, and for a spirit of cooperation and tolerance. He makes the following remark, apropos of the attempt of German philosophers to belittle the work of Locke:

"Was dagegen seine Lehre vom Wissen betrifft, so erscheint sie mir allerdings als eines der denkwürdigsten Ereignisse, welche die Geschichte der Philosophie zu verzeichnen hat, als eine Leistung, deren Grundgedanken der deutsche Kritizismus, und was sich daran schliesst, nicht überwunden hat und, falls der Wahrheit der Sieg sicher ist, niemals überwinden wird,—auch nicht, wenn sich das deutsche Nationalbewusstsein dieses Kritizismus annimmt und es manchem Forscher wie eine ethische Pflicht erscheinen lässt, Wahrheiten zu widerstreben, welche Ergebnissen deutscher Geistesarbeit entgegenstehen" (p. 164).

In the second paper, "*Zur erkenntnistheoretischen Würdigung des Gedächtnisses*,"³ the author argues that if memory is to be cognitive at all, it must be either immediately evident, or demonstrable. Neither alternative appears to be possible, until we qualify the first alternative and admit a new kind of immediate evidence, that establishes not certainty, but probability (*unmittelbare Vermutungsevidenz*). This sort of evidence will cover all the cases in which there is a temporal difference between the act of knowledge and the occurrence of the object. In Meinong's later writings this turns out to be the case with virtually all perception, so that certainty becomes a limiting case, and the distinction between perception and memory is obliterated. This essay, like the first, is unimportant only because the author has developed the subject more fully and with greater precision and finality in his later writings (e. g., the "*Erfahrungsgrundlagen unseres Wissens*").

The third essay, "*Über die Bedeutung des Weber'schen Gesetzes*,"⁴ is a study of the fundamental notions, such as difference, comparison, difference-quantities, etc., that underlie Weber's law. It is not a psychological study, but a "*relationstheoretische*" investigation of certain psycho-

² Cf., e. g., "*Ueber die Erfahrungsgrundlagen unseres Wissens*," 1906.

³ Originally published in the *Vierteljahrsschrift für wissenschaftliche Philosophie*, 1886.

⁴ Reprinted from the *Zeitschrift für Psychologie und Physiologie der Sinnesorgane*, 1896.

logical concepts. To clarify these conceptions it is found necessary to probe still more deeply into such conceptions as relation, quantity, and measurement. The essay thus prepares the way for such further inquiries as Mally's "Zur Gegenstandstheorie des Messens."⁵

The fourth essay, "Ueber Gegenstände höherer Ordnung und deren Verhältnis zur inneren Wahrnehmung,"⁶ contains the distinction of object and content (*Gegenstand und Inhalt*) which Russell has recently criticized.⁷ But the essay is devoted mainly to the discussion of complexes, objects such as relations, numerical groups (*e. g.*, *vier Nüsse*), synthetic qualities (such as melodies, etc.). These are objects having a certain unity, as distinguished from mere collections; but they are built out of other objects, the terms, members, or "*inferiora*." These objects may be real objects of experience, or ideal objects, due to a constructive act ("*Fundierung*"). The relationship may be determined by the nature of the terms (as, *e. g.*, the difference between *A* and *B*); or it may be accidental (as in the case of the real relation between a color and its localization). The essay contains an interesting discussion of perception, outer and inner, and of knowledge of the past. But the paper was rendered largely obsolete by the introduction in Meinong's later writings of the notion of "objectives,"⁸ and the consequent revision of terms. Indeed, this essay may be regarded as leading up to the necessity of replacing ideas with judgments or assumptions, as the acts by which these higher objects are known.

The fifth and last essay is the well-known "Ueber Gegenstandstheorie."⁹ Even this essay is in some respects out of date¹⁰—but it furnishes a compact and, on the whole, adequate statement of one of Meinong's most characteristic contributions to current thought. The need of a special branch of knowledge to be known as "*Gegenstandstheorie*" is due to the predilection of common sense, science, and even metaphysics for existence. That which exists is only a small part of the field of "*Erkenntnisgegenstände*." Thus relations, numbers, straight lines, "objectives," etc., do not exist, though it is important to know them. But even subsistence is not an indispensable condition of *Gegenstandlichkeit*. The "*reine Gegenstände*" are extra-ontological ("*Ausserseiend*") altogether. If this were not so, it would be impossible to assert "*Nicht-sein*" (*i. e.*, both non-existence and non-subsistence). If, in other words, an object had to be in order to have assertion made of it, it could never mean anything to assert non-being of it. Furthermore, there are many judg-

⁵ In the *Untersuchungen zur Gegenstandstheorie und Psychologie*, by Meinong and his students, 1904.

⁶ Reprinted from *Zeitschrift für Psychologie und Physiologie der Sinnesorgane*, 1899.

⁷ *Monist*, July, 1914, pages 447 ff.

⁸ "Ueber Annahmen," 1902 and 1910.

⁹ Published in 1904 in the volume of "*Untersuchungen zur Gegenstandstheorie und Psychologie*."

¹⁰ *Cf.*, *e. g.*, the author's "*Ueber die Stellung der Gegenstandstheorie im System der Wissenschaften*," Leipzig, 1907.

ments which disregard being altogether, and merely assert the "what" of the object. These judgments of "*Sosein*" are independent of, and coordinate with judgments of being. An object is *what* it is, whether it *is* or not. *Gegenstandstheorie*, then, is the study of objects regardless of their existence or subsistence. *Gegenstandstheorie* differs from psychology in that the latter studies objects only in so far as some psychical act is directed to them. Even the color pyramid, divorced from the act of sensation, would belong to *Gegenstandstheorie*. All objects whatsoever are at least possible *Erkenntnisgegenstände*, but *Erkenntnistheorie* differs from *Gegenstandstheorie* in that the former regards objects from the standpoint of knowledge only. Or one could say that *Gegenstandstheorie* deals with the objective side of *Erkenntnistheorie*. The condition of all sound theory of knowledge is to see that every case of knowledge involves both an act of mind *and an object*. *Gegenstandstheorie* differs from logic in that the latter is essentially a practical discipline. A "*reine Logik*" such as Husserl proposes is meaningless. *Gegenstandstheorie* is not metaphysics, because the latter deals with existence; but it may be said to be philosophical, and to resemble metaphysics, in that it transcends the distinction between psychical and physical. Owing to its indifference to existence, *Gegenstandstheorie* is *a priori*, whereas metaphysics is *a posteriori*. The one great achievement of *Gegenstandstheorie* thus far is mathematics, but it is capable of great extension, both in the form of such special branches as mathematics, and in the form of a general theory.

It is impossible not to admire Meinong's patient and rigorous analysis. He is a member of a rare species, that of the thoroughly empirical philosophers. Although he has invented many new technical terms, and attaches much importance to them, they possess no sacredness in his eyes. Their importance lies in their enabling the author to identify some specific observed fact, as would be impossible if he employed the suggestive and equivocal terms of ordinary discourse. None of his conclusions can lightly be set aside, for they are all based on a prolonged scrutiny of matters that are excessively complicated and difficult. One suspects that the great merit of his work may prove to lie in its *amplification* of the subject of epistemology. He has brought to light distinctions that can not in future be ignored. On the other hand, it is to be hoped that his distinctions may be reduced, if not to comparative simplicity, then, perhaps, to order. One can not repress the feeling that some transforming insight is needed here, as in psychology. Indeed, Meinong's research may not unfairly be compared with that of the recently reigning school of psychologists. It is essentially structural, intellectualistic, and introspective. It is possible in the one case as in the other, that a practical biological view of mind in its relation to an environment may prove to be what is needed. In any case the distinctions which Meinong has made, such as that between objects and objectives, *Sein* and *Sosein*, judgment and assumption, etc., will have somehow to be accounted for—because they are empirical distinctions which any one can verify for himself.

The reviewer has too much respect for Meinong to attempt any final verdict upon him without a much greater understanding of him than he

has yet been able to attain. Nor is there space in such a review as this for a discussion of the almost countless independent questions that are raised in these pages. But the book should not be passed by without a word of congratulation to the editors of the volume. As a piece of book-making it could scarcely be improved on. It is not to be recommended to those who are approaching the study of Meinong, because most of it has been revised and improved. But for any one who is interested in the development and generating motives of Meinong's thought, this volume is indispensable. The careful and lucid notes are filled with cross references, which enable one at all times to keep in touch with the author's later and revised views, and which through their clearness and brevity often throw a helpful light on these views themselves. There is a good index, and a complete chronological list of Meinong's writings. As a birthday gift in celebration of a master's threescore years the volume is most happily conceived, and testifies to the taste as well as to the loyalty of his pupils.

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The Layman Revato: A Story of a Restless Mind in Buddhist India at the Time of Greek Influence. EDWARD P. BUFFET. New York: Douglas C. McMurtrie. Pp. vi + 102.

The reader of the semi-historical romance "The Layman Revato" will find much in its pages that will help him better to understand the philosophic significance of Buddhism and the relations and differences in thought between East and West.

In his preface the author correctly states that "the present, largely historical, although structurally imaginative, study is a rendering of Indian life and thought toward the close of the third century B.C., in the last days of Piyadasi, Asoko, 'The Buddhist Constantine,'" and that it "projects an interplay between Buddhism and Hellenism." Throughout the story of this "restless mind," wavering between Oriental and Occidental aims and ideals, the element of fiction receives an enhanced coloring through the romantic tale of love philosophically interwoven with the main theme.

The major chord is the struggle of the human heart seeking for the emancipation of the spirit through self-abnegation of fleshly desires and the annihilation of all barriers that hinder the attainment of the realms of Nirvana. The Buddhist doctrine of Renunciation, and in reality, after all, the Christian doctrine of Love as developed later in its fulness, may be read between the lines as dominant notes. A touch of the well-known Indian *ahimsa*-doctrine, or non-injury to any form of animal life, is subtly wrought into the fabric of the narrative through the devoted treatment by the hero Revato of the faithful dog that accompanied him during his varied vicissitudes.

The historic background, in which the scene is set, seems in general to be accurately portrayed as reflecting the times described at the end of the third century before the Christian era, after the close of the reign of the great Buddhist king Asoko. Quotations from the Buddhistic scriptures are aptly introduced in translation, sometimes also accompanied by the

original Pali text in transliteration. Greek verses add a tinge of color because the fair heroine, Prote, whom the hero knew as the embodiment of love, lends a touch of the divine flame to make Revato's renunciation all the harder.

The strict critic as to tone and atmosphere may object in this connection to the insertion into the text of quotations in Italian, German, and French, even though the author defends them as expressions "written in all languages and in all lives." But the same critic would not expunge a single section of the two chapters entitled "The Great Renunciation" and "The Vision of Death" as a contribution to philosophic thought.

The publisher of the book, Mr. Douglas McMurtrie, who evidently takes a deep interest in matters Oriental, has done well in making this work accessible in appropriate form to those who give attention to the views of the East as well as the West in problems relating to the interpretation of life. For that very reason it is worth while to add that the scholarly spirit of Mr. Buffet's volume is shown by the free use already referred to, of the standard translations of the Buddhist works by Professor and Mrs. Rhys Davids and other recognized authorities. There are appended likewise at the end of the volume outline maps and designs of the city of *Pataliputra* and of the realms influenced by Buddhism in the third century B.C., at which time the scene is laid; and there is added for the non-specialist a page or more of useful information in the form of a glossary of Pali words to elucidate technical Buddhistic terms employed in the text.

A. V. WILLIAMS JACKSON.

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JOURNALS AND NEW BOOKS

MIND. July, 1914. *The Philosophical Aspects of Freud's Theory of Dream* (pp. 321-334): H. WILDON CARR. — In Freud's theory, the unconscious comprises what has been conscious experience, which a power for enforcing oblivion, called the censor, causes to lapse into forgetfulness. An absolute power of forgetting seems at variance with facts of experience. The censorship is no doubt a reality lying below consciousness, but it is probably not exercised over anything that has once formed a part of the foreconscious. As a doctrine of psychical activity Freud's theory is profoundly suggestive, but requires complete restatement. *Has Green Answered Locke?* (pp. 334-348): HOWARD V. KNOX. — Green has best shown the divergence between rationalism and empiricism. From the point of view of absolute knowledge, human knowledge is not knowledge at all, and from the human point of view absolute knowledge is not knowable. Green ignores Locke's humanism and practical aims, and treats him as an intellectualist with a faulty theory of the mind. Locke the empiricist studied human knowledge; Green starts by maintaining that knowledge is timeless. The relation of thought to time is the point of divergence. Green has not answered Locke because he uses the word knowledge in an-

other sense and context. *Critical Notes: Josiah Royce, The Problem of Christianity: H. RASHDALL. G. Rensi, La Trascendenza: A. E. TAYLOR. Heinrich Rickert, Die Greuze der Naturwissenschaftlichen Begriffsbildung: H. W. BLUNT. Benedetto Croce, Philosophy of the Practical, Economics and Ethics: H. J. PATON. New Books. Philosophical Periodicals. Mr. Bradley on Truth and Reality (pp. 349-370): C. D. BROAD.*—A discussion of Mr. Bradley's "Essays on Truth and Reality." *The Philosophy of Samuel Butler (pp. 371-385): ROBERT F. RATTRAY.*—Butler's philosophy is gaining ground. There are analogies in Freud and Bergson. Butler holds that consciousness extends in infinite area throughout the universe. He finds an inside to the universe continuous with the inside of man. He is, in a sense, a pantheist. We can not fix the time when we became conscious. Memory is inherited. We actually have been our ancestors. It is the philosophy of a living and intelligent universe instead of a dead and fortuitous one. *Discussions. Professor Perry's Realism (pp. 386-395): F. C. S. SCHILLER. Aristotle and Abstract Truth (pp. 396-401): G. R. T. ROSS. Dr. Mercier and the Logicians (pp. 402-404): H. S. SHELTON.*

Croce, Benedetto. *What Is Living and What Is Dead of the Philosophy of Hegel.* Translated by Douglas Ainslie. New York and London: The Macmillan Company. 1915. Pp. xviii + 217. \$2.00.

Ellwood, Charles A. *The Social Problem: A Constructive Analysis.* New York: The Macmillan Company. 1915. Pp. xi + 255. \$1.25.

Höfding, Harald. *Modern Philosophers and Lectures on Bergson.* New York and London: The Macmillan Company. 1915. Pp. xii + 317. \$1.40.

Keller, Albert G. *Societal Evolution: A Study of the Evolutionary Basis of the Science of Society.* New York: The Macmillan Company. 1915. Pp. xi + 338. \$1.50.

NOTES AND NEWS

At a meeting of the Aristotelian Society on April 12, Mr. C. D. Broad read a paper on "Phenomenalism." Phenomenalism is a philosophical theory which claims to be able to dispense with physical objects. Ordinary common sense distinguishes between mental acts and their objects, but it wants to hold that the objects we perceive with our senses are geometrical parts and qualities of physical objects. The immediate objects, however, by which we judge physical objects to exist are sense-data. The difficulty is to see how we can pass from the existence, qualities, and relations of a certain group of sense-data to assert the existence, qualities, and relations of some determinate physical object of which we can never be directly aware. The phenomenalist proposes to substitute for physical objects classes of which sense-data are particular individuals. The theory has been specially put forward by Mr. Bertrand Russell to avoid the assumption involved in the common view. He has argued on the principle of Ockham's razor, that entities are not to be multiplied without necessity.

It is doubtful, however, whether Mr. Russell's theory does not involve an even larger assumption and multiplication of entities than does common sense. The ordinary man believes that sense-data only exist in connection with living minds and bodies, and he does not assume sensibilia of which no one is aware. But Mr. Russell's theory assumes sensibilia of which no one can be aware, for there are supposed to be perspectives where there are no minds. The claim put forward for it is that only by such a theory can physical laws be verified, for these start from observations on our sense-data, and must ultimately be verified by such observations. After submitting the theory to a long criticism, and illustrating its working in particular cases, the writer held that, even though it might be impossible to offer a conclusive argument against phenomenalism, it could, at least, be shown (a) that phenomenologists had never grasped how much alteration their theory demands in our most ordinary beliefs about a great many other things than physical objects, and (b) that it is most unlikely we should have discovered and verified many of the common laws of physics, or had any motive to look for them, unless we had habitually analyzed phenomena and directly verifiable laws into the consilience of more general physical laws. Mr. Bertrand Russell, replying in the discussion, said that "phenomenalism" was not the term he himself used to denote his theory. His own view was not dogmatic phenomenalism; he had suggested merely a preliminary method. There are two different problems: (1) How much of ordinary physics can be stated in phenomenalist terms? and (2) if physics can not be stated in such terms, what conceivable principles can be discovered by which we may find ground for belief in them? The second problem can not be tackled until the first is solved. The difference between sense-data and physical objects is that the former are not transcendent, and do not last through time; while the essence of the latter is that they persist through a fairly long time. In reply to a question, Mr. Russell said that sense-data had some duration. They were not purely-points, but lasted through an appreciable part of the specious present. With regard to his own theory, it was only intended to be rough and preliminary, not to be put forth as a finished thing. He had no definite result. His aim was to see how much could be done with the smallest amount of material; and if the material be inadequate, to find out where it is inadequate. With regard to the criticism that he assumed sensibilia of which no one is or can be aware, he maintained that there may be perspectives where there are no minds; but we can not know anything of what sort of perspective they may be, for the sense-datum is mental. It was only another way of stating that things having exactly the same status as sense-data could exist without being data. He had nothing particular to say about sensibilia, and wanted to get physics stated without assuming them, whereas physical objects are ordinarily presented as the essence of what physics is about. His real interest was the method.—*Athenæum*.

PROFESSOR BERNARD C. EWER, of Reed College, will go to Brown University next year as *locum tenens* in philosophy during the absence of Professor Everett.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

THE DISCOVERY OF TIME

V

THE EGYPTIAN CALENDAR

WE have seen, in our general survey, how the reckoning of time reflects everywhere the outlook and habits of society, as these in turn reflect the environment and conditions of life of early peoples. In no other country is this more evident than in ancient Egypt. There it was almost inevitable that the solar year should triumph, for the land itself forced along the adjustment. Nowhere else does nature provide such a chronometer as in the valley of the Nile. The long, rock-bound river basin, like a vast but narrow-throated water-glass, holds and slowly passes along the periodic floods. There was no such instrument as this at hand for the farmers of Bœotia or Italy to measure by. For four out of twelve months the water-glass fills and empties, leaving an interval of only eight months which it requires no great ingenuity to divide into two seasons of four months each, the first being that of the growth of the crops and the second rounding out the easy symmetry of the year.¹ For the flood returns at such regular periods that it is possible for even fairly simple people to calculate against the time of its coming,—especially since the interval is not too long. Moreover, by a strange coincidence, priestly observers, watching the heavens at the critical time when the flood was due, could see the bright dog-star, Sirius, just rising then at dawn. This “heliacal rising” of the star, so strangely fitting in with the coming of the flood, furnished, therefore, a genuine date for a New Year,—and the river itself swelling out before one’s eyes, announced the fact to the whole country. The coming and going of moons—while still a matter of some importance—was bound to be subordinated to such a system, where the major gods of a religion, the constant stars and the demands of business all fitted into a common

¹ For details on the three seasons, Cf. Ginzel, I., page 159. On the artificial character of the four-month season of harvest, see Foucart in Hastings’s *Encyclopædia of Religion and Ethics*, article “Calendar.” The Egyptian farmer’s calendar was, from the peculiar conditions of the Nile life, a complete variation from that indicated above as the basis of European farming calendars.

scheme. Moons would do for reckoning time in Babylonia, where the floods of the Euphrates were less exact, and less important. But in Egypt, where the whole country was a clock, how could one miss the time?

Yet that is just what the Egyptians did! They never reckoned the time correctly. Three hundred and sixty-five days do not make a solar year, but only a rough guess at one; they are over six hours short. However, the Egyptians let it go at that and held to their venerable error through all the long centuries of their history. It was not until the year 238 B.C. that the simple device of a leap-year of 366 days once every four years was decreed, in order to keep the civil year in correspondence with the stars.² But even this was not obeyed nor followed up, and it was left for Augustus to end the age-long blunder by imposing upon Egypt that revised calendar of 365½ days which Julius had himself received from an Egyptian astronomer.³

Although Egyptologists are all agreed that the Egyptian year was thus inaccurate, they are by no means united upon what was done by the Egyptians to make such an inadequate calendar work. It is claimed by one group of Egyptologists that nothing was done to check the error, that the short calendar year went on for centuries, gaining days and years over the solar year without any one ever bothering over it. This is as flatly denied by other scholars, basing their argument upon both inscriptions and probabilities. It is a controversy in which only the trained Egyptologists have the right to speak; although even they have hardly the right to speak with dogmatic assurance. For the mere existence of such divergent views shows upon how slight grounds some of them must rest.

The foremost exponents of the former view are Eduard Meyer in Germany and J. H. Breasted in America, both illustrious names in the science of Egyptology. According to them the calendar year, running ahead a little over one day in four years, had gained a whole year in 1460 (4×365) years, without priests or pharaohs intervening to stop the process. The gain was very slow, almost imperceptible, only a week in a generation, or about a month in a lifetime,—too little to bother about. Any reform would disturb business and religion even more than the retention of the old misleading cycle.

² The Decree of Canopus, under Ptolemy III., Euergetes, dated its reform from the 7th of March, 238 B.C. The inscription was found in 1866. German translation in Ginzler, "Handbuch," Vol. I., page 197.

³ The exact date of the introduction of the Julian year in Egypt—known as the Alexandrine era—is a matter of dispute. For discussion see Ginzler, "Handbuch," Vol. I., pages 224–228, who inclined to the view that the first leap-year was 26 B.C., but that the epoch was carried back to 30 B.C. E. Meyer, "Geschichte des Altertums," Vol. I., page 29, dates it from the twenty-ninth of August, 25 B.C.

Hence, they claim, the Egyptian year revolved through the solar once in every 1,460-year period. A text in Censorinus, the astronomical writer of the days of the Antonines,⁴ states that the opening of the calendar year coincided with the heliacal rising of Sirius in the year 139 A.D.; *i. e.*, that in that year the star rose at sunrise on the old first day of the Egyptian year, our 19th of July. With this as a starting point our historians reckon back "Sothic cycles"⁵ of 1,460 years to 1321, 2781 and 4241 B.C., on which years the star Sirius rose at dawn on the 19th of July. This leads to the statement that in the year 4241 B.C. the calendar year of 365 days was inaugurated, since 1,460 years before that date would be too early and 1,460 later would be too late.⁶ If this theory could be accepted, then, we have an exact date, and one of the oldest in the world, for the beginning of an astronomical measure of time. Unfortunately, there seems to be little to support it. There is no mention of the "Sothic cycle" until late in the Roman period. The ancient monuments are silent upon it. So the first obvious conclusion seems to be that it was a creation of the late astronomers, calculating backwards in the way just indicated, and that it never existed as a matter of history at all. In fact, when it is used for chronology its critics claim that it leads to some impossible dates and direct contradictions with some of the monuments.⁷ These facts, combined with the silence of Herodotus, seem to the critics of the Meyer hypothesis sufficient ground for consigning the "Sothic cycle" to the realm of historical myth. And yet when the critics come to offer the alternative hypothesis, *i. e.*, that the year was lengthened from time to time to bring the festivals' stars together, the data in the texts are just as lacking. Moreover, the Decree of Canopus assures us that in 239 B.C. the calendar year was 10 months out, and as the reform of that decree was not carried out we see how the short year was apparently allowed to go on completing its cycle then.

It is unnecessary here to follow further the details of a controversy which still divides Egyptologists and can only be settled by the discovery of new data. But it is important for us to realize how either hypothesis detracts from the achievement of the ancient Egyptians, as set forth in some enthusiastic histories. Either they rested content with a revolving year which corresponded with nothing in nature,

⁴ *De die natali*, c. 18; written 239 A.D.

⁵ *Sothic* from *Sothis* the Hellenized form of *Sopdu*, the Egyptian name for Sirius.

⁶ Cf. Ed. Meyer, "Aegyptische Chronologie" in *Abhandlungen der Berliner Akademie der Wissenschaften*, 1904, 1907, and his "Geschichte des Altertums," Vol. I., page 30. Breasted, "Ancient Records," Vol. I., pages 25, *et seq.*

⁷ Cf. summary by G. Foucart, in article "Calendar" (Egyptian) in Hastings's *Encyclopædia of Religion and Ethics*, page 95.

except once in almost 1,500 years or they intercalated days at odd intervals, without the regularity necessary for accurate records of time. The year of 360 days with 5 extra ones thrown in was apparently in use in Egypt long before the fifth millennium; but the science of Egypt never, until the close of its history, and then under foreign auspices, broke loose from the bonds of its own forging. It left the field of astronomy and accurate chronology for the Greeks in Alexandria to discover in a later era.⁸

VI

THE BABYLONIAN CALENDAR

From Egypt we turn to Babylon—known almost from the dawn of history as the mother of astronomy. But again we find that what has passed the careless scrutiny of most historians for scientific achievement is a poor and disappointing thing. Contrary to common belief, ancient Babylon and Assyria contributed almost nothing to any real science of astronomy until almost the close of Assyrian history. This fact, which is now established by ample evidence from the inscriptions, is one of the most important in the intellectual history of mankind. It shows again with clear and crushing force what lasting barriers superstition can erect on the road toward science.

The earliest chapter of Babylonian—or, more correctly, Sumerian—history reveals the common outlook of any semi-savage people, sunk in that crude animism which fills the world with supernatural powers. Every living or moving thing had its *zi*, or spirit, every uncanny spot was haunted by the ghost-demon, *lil*, and fetish cults and magic rites extended the imagery of fear. Over and above this low grade superstition there was a worship of local and tribal divinities and of those mysterious forces of nature which are to be found in every pantheon of advancing cultures.

We can not attempt here to disentangle the complicated mythology. ⁸ Ginzl, Vol. I., page 152, points out the relatively slight progress made in astronomy by the ancient Egyptians. They knew the Zodiak, the most important constellations; they had distinguished planets from the fixed stars, had observed the heliacal rising of Sirius, etc.; and yet the results of their observations were very crude. The monuments do not show whether they knew the relations between the movements of the planets or not. The development of astrology in Egypt came in its later period. There is nothing in the sources on the observation of eclipses,—the very thing which furnished the Babylonians with the means for determining the movements of sun and moon. Ptolemy, the great astronomer, had to turn to Babylonian and Greek forerunners, apparently, in view of the lack of Egyptian material. In any case, in the material found so far, there is absolutely no trace of that systematic activity in the taking of observations, without which no certain progress can be made in astronomical science.

ogy, in which these divinities interfuse and interwork. How, for instance, Ea, the god of Eridu, the city on the gulf, was as well the god of water, or Enlil, of Nippur, the god of the underworld and the life-giving earth remained a sort of second personality for Marduk,⁹ the great god of fertile Babylon, and how these two formed with the sky god, Anu, of the city Erech, the Sumerian triad, to be invoked together for so many centuries. A new situation was created, however, when—still long before the great days of Babylon—the Semites swept in upon Sumeria, bringing with them, so it seems, that devotion to the supreme moon-god, Sin, and developing that accompanying worship of the sun, Shamash, and of Venus (Ishtar) of which the records now yield increasing evidence.¹⁰ At first this triad differs in no way from the other. It was undoubtedly just part and parcel of the great pre-religion of luck, muddled in with the luxuriant beliefs of animism, an extension, if anything, of primitive superstitions. Nevertheless it contained—as we see it now—the possibilities of a new intellectual outlook. The haphazard, unaccountable world, where spirits and demons and all the fantastic embodiments of the uncanny might cut athwart the natural movement of cause and effect, could in future be organized into a pattern of vast and regular form,—could, that is, if the priests would merely watch the movements of their deities. In the normal run of things it would seem that, when religion fastened the hopes and fears of men to the stars, a science of astronomy would inevitably follow, that the attention bestowed upon Powers at once supreme and visible, would result in definite and careful observation and a body of knowledge of lasting value. But such was not the case. The pattern of the universe was not accurately mapped out, the motion of the stars was not correctly calculated until thousands of years after the moon-god began his reign in Babylon. Fetishism, magic, incantation, rites of sacrifice and augury maintained their hold. If religion directed attention to the clock of the universe, it also drew across its face the veil of mystery and diverted the observer by its fantastic myths, so that even astrology made little progress until the closing period of Assyrian-Babylonian history. Egypt reveals the benumbing influence of custom and habit; Babylon the blight of credulity. Social convention in the one and relig-

⁹ Marduk absorbed the powers of Enlil just as later the Hebrews attributed to their Jahve powers which the Babylonians had attributed to Marduk. Cf. R. W. Rogers, "Religion of Babylonia and Assyria," page 134.

¹⁰ Sin had been as well the local deity of the city of Ur, and Shamash of Larsa and Sippar, but the gods share the fortunes of their worshippers, and apparently it was the Semite conquest which was responsible for the dominance of the moon over the affairs of Babylonia.

ion in the other barred for many centuries the path of scientific inquiry.

Yet the work of the priests of Babylonia was destined, in a strange and tortuous way, to furnish the basis for the scientific advance. For untold ages they applied themselves to the futile task of mastering the data of luck, by observing portents and recording omens. Libraries were filled with tablets preserving the directions for charms in magic and the rules for taking the auspices. In the same way they noted the stars that "presided" over crises in life and interpreted their coincidences in terms of that universal law of similarity which, as we have seen, so largely explains the world to the primitive. The blood-red planet Mars (Ninib) would somehow coincide with something in the story of war; Ishtar (Venus) would somehow be connected with the story of love. The connection might seem, to any chance doubter, had there been one, often far-fetched and distorted, but the codification of all this mass of conflicting material fell to the hands of men highly gifted in the art of codifying. The code of Hammurabi, that oldest systematic and comprehensive body of law in the world's history, the discovery and publication of which thrilled with surprise even the blasé dawn of our twentieth century, was but one of many such compilations in Babylonia. The task of codification was forced upon the inhabitants of a country of shifting races and empires, of continual intercourse through commerce with the outside world, if the heritage of the past were to be made to fit with the contributions of the present; and the priests of Mesopotamia met the task nobly, in the spirit of scholarship. The libraries of the Assyrians bear witness to an activity such as that which codified the Roman law or harmonized the theology of the Middle Ages.¹¹ Had

¹¹ Codification involves a historical operation in its discriminating analysis and careful synthesis, whenever it deals with data of social evolution. There is a sense in which the code of the Roman law would fit very well with the conception of history in antiquity, particularly that expounded by Polybius. In it the experience of the past is teaching the inexperienced present; it is a preservation of those elements of the past which can apply to the complications of other times. The rest may be discarded; what is kept is the useful, the real fruit of all past activity. But the more historical the codifier is, the less his work is likely to be of value. For when the sense of the past is strong—as is surely to be the case in all religious compilations, owing to the sacredness of origins—the result is a failure to meet the changed conditions of the present. The result is stagnation. Boldness in the intellectual quest is sacrificed in order to secure results which harmonize with those already attained, and no matter what wealth and variety of phenomena the present offers, what chances of intellectual and social advance it opens up, the mind or the society which is bound to the wheel of antique premises or authority revolves, but does not progress. It is from this angle that one comes upon that antagonism between antiquarian scholarship and radicalism which has been so marked in the last two centuries.

a science of luck been possible, the long and careful labors of the Babylonians surely would have discovered it. As it was, the study of the conditions in the universe under which things happened, in order to learn the forces of luck involved in them, would seem at least to have held the promise of eventual discovery of the conditions in and for themselves, and so instead of a science of luck there would have been a science of nature. It was a promise, however, which the Babylonians themselves never really fulfilled. They furnished the basis for the scientific advance, but were never able to win sufficient emancipation from the primitive superstitions to make the advance themselves. They did succeed, finally, in the seventh, sixth, and fifth centuries B.C. in supplanting the crude old myths by a mathematical statement of the movements of the stars.¹² But astrology, the last phase of Babylonian priestly lore, was still rather a religion than a science. Its calculations and observations were, as in the earlier cults, for the purpose of discovering the properties of the stars, and the very numbers in which the astral movements were reckoned were the mystical embodiments of fate. It was reserved for another and more gifted people to transform astrology into astronomy; and even the Greeks were not quite emancipated from the age-long curse of the religion of luck.

The main reason why this mass of priestly lore was not more useful for science, was, as has just been hinted, the weakness of its mathematics. And this was due in turn—apart from the eternal stumbling block of the mystery and sacredness of numbers, of the luck embodied in the sixes, sevens, and their multiples, and all the persistent jumble of accompanying superstitions,—to the lack of an accurate base of reckoning. The first essential for the study of re-

¹² The achievements of the ancient Babylonians in astronomy have been much over-stated by a group of scholars, of whom the chief is Hugo Winckler—the pan-Babylonians—whose main tendency has been to trace everything back to the early age of Babylon. The recent works of Strassmaier and Kugler, based upon the deciphering of Assyrian astrological tables, have quite disproved this proud claim of extreme antiquity for Babylonian astral science. Edward Meyer ("Geschichte des Altertums," page 458) points out the striking fact that Orion seems to have been unknown to the ancient Babylonians, while it appears in the oldest periods of Egyptian history, along with Sirius, and plays a great rôle in the hieroglyphs. It was also known very early to the Greeks (*cf.* Hesiod as above). The same is true of the Great Bear. From dim antiquity the Babylonians had known the movements of Venus—the brilliant star which rose on winter mornings and set on summer evenings, and already in the twentieth century B.C. they had measured its heliacal cycle of 21 years (from 1977–1957 B.C. See Kugler on Table 63). They also easily distinguished the four other planets of that group which, as we have seen, gave us the names for the days of the week; Ninib (Mars), Nibo (Mercury), Marduk (Jupiter), and Nergal (Saturn). Eclipses were also kept track of, but not with sufficient accuracy to yield any scientific results until in the late Babylonian period.

curing phenomena of the heavens is a reliable measurement of the intervals at which they recur, and this, in turn, is impossible so long as time is measured by the moon.

We have seen how the moon-god gained ascendancy in Babylon in the days of the first Semitic kingdom. Dominating the religion, it dominated the cosmology. In the earliest semitic records, Sin, the moon-god is so lofty a deity that the sun-god, Shamash, is referred to as his "sevitor."¹³ The "victorious sun" won his supreme place in Mesopotamia only in later ages, and not until the Semite had yielded before the Aryan Prussians was his triumph assured. So long as the Semites ruled, the moon blocked both his path and that of a rational cosmology. Why this was so—that Babylon should cling so persistently to the moon, when Egypt so many centuries earlier turned to the sun as the center of its cosmology—is not a fact to be explained away on any easygoing materialistic basis. But, on the other hand, the materialist data need not be neglected, and a little consideration shows us that although nature was perhaps more kindly to Babylonia than to Egypt in the fertility of farms, it was, by this very fact, less propitious in the arrangement of the seasons. Pliny tells us how wheat grew there twice a year,¹⁴ which would disorganize any farmer's calendar that was trying to follow the sun. Under such circumstances, we can see how the invading Semites, coming from the desert where they had imbibed so deeply the nomad feeling for the moon, would not be obliged, when settling on the soil, to lay aside that deep-seated, primitive sense of its dominating luck over the nights and days, for another calendar run by the sun. Whatever the reason,¹⁵ the moon ruled in Babylon, and the calendar bore the marks of it.

We shall leave aside the question of the exact way in which the Babylonian calendar grew up.¹⁶ It is a matter concerning which Assyriologists are still not agreed, and new inscriptions may at any

¹³ Cf. M. Jastrow, "Babylonian and Assyrian Religion," pages 68 ff. It is interesting to note that the name, "Sin," occurs in "Sinai," showing some definite south-Arabian affiliations. The early custom of reckoning the day from the evening is of interest in this connection. Later, the Assyrians began it at daybreak. Compare the North American Indian's reckoning by so many "nights" or "sleeps."

¹⁴ "Natural History," Vol. XVIII., page 17.

¹⁵ The greater ease of observing the moon with the naked eye as compared with the sun is also a factor.

¹⁶ The exact origins of the Babylonian calendar are as obscure as those of the Egyptian. The hypothesis of an original year of 360 days with 5½ added, which was advanced by H. Winckler and those of the "old Babylonian school," has, apparently, no data in its favor. Every city seems to have had a different calendar at first, and the unification to have come only very slowly, after the first dynasty of Babylon. Cf. Ed. Meyer, "Geschichte d. Altertums," pages 365 ff.

day recast the story in a different setting. But, whatever primitive measures of time they started with—different in different cities—the priests of Babylonia had their lunar calendar in operation as long ago as 2500 B.C. The month, which began with the first appearance of the new moon in the evening sky, was reckoned with fair exactness as $29\frac{1}{2}$ days,¹⁷ but as this was an impossible measure, two lengths of months were employed, 29 days for a “hollow” month and 30 days for a “full” month. In the early calendars it was, therefore, customary and necessary to indicate along with the name of a month what number of days it contained. Twelve of these months made a year of 354 days. As this was over eleven days short of the solar year, the next calendar year would be quite out of reckoning with the sun, the seasons, and such festivals as they involved. As this kept getting worse instead of better, an additional month had to be intercalated—making the year 384 days—at the command of the priests, whenever they decided that the festivals needed readjustment. The priests seem to have worked out no unchanging system of intercalation until the close of Babylonian history, when in the Persian period regularity was definitely assured.¹⁸ The query comes to even the superficial student whether the “victorious sun” of the Persian heavens was not in some way responsible for this rectification.

So far, the survey of the ancient Babylonian history has been disappointing. But a new era began in the seventh and sixth centuries B.C., in which the age-long groping of the priests, their uncertain dating and ineffective observations were changed into accurate and scientific calculations. This was one of the most important events in all the world's history, one of the major epochs in the history of intellectual emancipation, perhaps hardly less decisive than the age of Copernicus and of Newton. For to it we can trace the first accurate orientations of mankind in time and of the world in space. To it go back all lines of scientific advance in chronology and astronomy. The story of this achievement, however, carries us from the consideration of calendars to that of chronology, from the reckoning of time by days to that of years and then of non-recurring periods. In the chapters which follow we have, therefore, the setting for the dawn of history.

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(To be continued.)

¹⁷ The length of the astronomical month, it may be recalled, was 29.530589 days.

¹⁸ Cf. Ginzel's “Handbuch,” Vol. I., pages 132 ff., for lists of the years of intercalation.

A THING AND ITS PROPERTIES

THE examination of space and time must have convinced the reader that philosophy can set the categories in their true light only when it studies them genetically. To introduce a view which belongs to one level into another level can only work confusion. It will be our purpose to apply this method to the study of the distinction between a thing and its properties. What does common sense mean by a thing and what does it mean by properties? Does science hold to the same meanings or has it changed them fundamentally? Let us investigate these questions in the endeavor to decide what view philosophy must defend.

Empirical substances or things are believed by common sense to be the direct objects of perception. To the unsophisticated mind, they are as they are perceived and are held to be open to the inspection of all men with their five senses. This attitude with its various assumptions has already been studied by us and we have agreed to call it natural realism. The trees which grow in my neighbor's yard are instinctively regarded by me as real things, things which I must reckon with, which have taken many years to attain their present size and have nourished themselves by their roots and leaves during that time. The things which I perceive are independent of the sensations which they cause in me and are also quite oblivious to any concepts I may form with respect to them. A deal of hard experience has gone into the making of this attitude; the independence and indifference of things has been borne in upon man as a result of the labor he has undergone in trying to make the world more adapted to himself. Now these meanings must be accepted and they spell some sort of realism. What we wish to do is to examine the outlook attached to these meanings in common sense and to show how untenable it is in many respects.

Things, for common sense, are perceived or at least capable of being perceived and are known to be independent of the perceiver so long as he does not operate upon them by means of his body. They are also known to occupy space, to be in relations of a spatial kind with the other things, to be, more or less stable and perdurable, and to possess qualities or properties of various sorts. All this is common knowledge. The classificatory sciences extend our knowledge of things within this framework and thus add greatly to our information concerning the number of things and what obvious properties they have. As a result, these things fall into natural groups such as the inorganic and the organic and these larger groups split up into smaller ones. So far as possible such classifications try to be "real"

or to follow the important properties of the things rather than "artificial" and to wait upon our convenience. Philosophy has little if anything to say as regards such empirical investigations and resultant classifications.

Common sense has no definite theory of what it means by the independence and realness of things. If asked to define its attitude and assumptions, it is at first at a loss to conceive what the question can mean; it seems to it foolish even to ask the question. Of course things are out there; they are as real as my body; I must adapt myself to them; they are a part of nature; I see them. Things are certainly not our experiences, they are as real as we are and as independent of us as we are of other persons. The pressure of human experience lies back of this attitude and in our theory of knowledge we have seen reason to accept it as essentially true. The generalizations of science have likewise but confirmed it. Astronomy, geology, physics, evolutionary biology have piled fact upon fact and theory upon theory, all pointing to the reality of nature and to the belief that we are but insignificant and temporary parts of it.

Things are, then, experienced as in the same world with ourselves; it is they to which we must adapt ourselves and we must use them in various ways in order to maintain ourselves. Through centuries of conscious and unconscious reasoning, certain distinctions have been drawn and certain meanings have developed, and the realness and independence of things is one of these basic distinctions. Their realness is bound up with their empirical independence; they confront us at every move and compel our recognition and our adjustment. In short, they seem to be as immediately given and as real as ourselves. Here, again, we see the truth of the assertion that our categories are, in the main, products of unconscious thinking, of unreflective distinctions forced upon us by experience.

This genetic approach gives us our clue. Perceptual experience and practical thinking precede theory, with the result that the category of thinghood is found ready to hand when reflection arises. Things are as real as are enemies and food and shelter. The attitude which goes with the perception of things is thus as old as organic life itself. The centuries of evolution but gave it content and a wider setting. Natural realism and the category of thinghood are, in fact, inseparable.

The delimitation of things in the world to which we react was, so far as we can make out, the function of personal interests guided by perception. Man was built on a scale that enabled him to include a wide field in a single survey and to be interested in the outlines of molar bodies like trees and boulders and animals. Since many of these objects moved in a total fashion, they were included as a unity

in the span of attention. The background of nature had as a foreground a large number of "things," which stood out from one another for various concrete reasons and which could each awaken a vital interest to give grip to its power of stimulating the sense-organs. When we examine our experience and the interests which run quivering through it, we are unable to think of any other possible development. Perceptual and empirical space are both filled with a manifold of objects which stand out from one another and from ourselves in the most natural way while yet concerned with one another. That which is given to adult reflection is very complex and the burden of proof rests with the skeptic to show that it is not essentially veracious.

But our present task is to trace the development of the idea of thinghood from its perceptual stage to the scientific level. What is naturally meant by things? What changes, if any, does science introduce into our natural view of things? How must a critical philosophy conceive things? These are the questions we are compelled to ask ourselves in our attempt to understand the framework of our knowledge of nature.

Things have qualities or properties, they are in spatial relations with one another and together compose nature, and they interact. To comprehend things we must, therefore, study them critically in regard to these aspects of our experience of them. It is evident that these aspects involve other categories such as relation and causality which must be taken up for detailed consideration later, but which are here seen to be naturally involved in the adequate conception of *that which* is spatial and is capable of change. Thus, even in the naïve view of nature, we glimpse the essential unity or togetherness of the categories. Space, time, thing, property, relation, and causality, make themselves marked as essentially inseparable in our knowledge of the physical world. Science and philosophy are but more systematic extensions of this knowledge and more painstaking and thorough studies of these implicit categories. We shall seek to justify the belief of critical realism that this development and clarification can be carried through in a satisfactory fashion so that the *framework of knowledge* will fit its *content* and involve no self-contradiction. When this work is done, critical realism as a theory of knowledge will find its completion in critical realism as a metaphysics.

While bearing in mind the fact that spatial relations and causal interaction are inseparably bound up with our notion of things, we shall lay our main stress upon the distinction between things and their qualities or properties. The study of this distinction will put us on the track of what I may fairly call the internal categories, such as structure, arrangement, organization, activity, in contrast to the external categories such as relation, motion, causality.

Man experiences things as complex while yet somehow one. An apple, for instance, has a certain size, a certain shape, a certain odor, a definite taste when eaten, a fixed weight, etc. It is *one* apple and this one apple has various qualities which can be sensed at different times according to the sense-organ that is stimulated. In some way, then, we experience the apple as complex; we keep the same subject of reference while we note quality after quality. It is this double fact of oneness and complexity together which has given rise to the philosophical problem of substance and inherent properties. Let us try to analyze the experience a little more closely to see whether it rightly falls into this customary, philosophical framework. It may be that we have here a typical *pseudo*-problem which, if not guarded against, will lead the unwary into a conceptual labyrinth from which there is no escape. It is my own firm conviction that the whole historical movement from Locke to Hume is but a *reductio ad absurdum* of this customary framework. Berkeley and Hume disproved the existence of substance as implied in this contrast, but, nevertheless, did not, for all their ingenuity, disprove the existence of a physical world of which we can gain valid knowledge. As we shall see, they only proved that Locke's realism was untenable. They did not realize that it was Locke's implicit view of knowledge reflecting the prejudices of natural realism that was at fault. Just how we shall interpret the complexity in unity of things is, therefore, a crucial point.

The distinction between a thing and its qualities is made naturally and inevitably. This pencil which I take up and examine is regarded by me as real and independent of my attention; I note its color and say that it is yellow, its length and say that it is quite short, the quality of its lead and say that it is soft. These judgments, in other words, are all made within the context of natural realism. They imply the category of thinghood and work within that outlook. In short, the world which I perceive breaks up into portions which act together and force me to recognize them as somehow one, to be treated as one and thought of as one, in the same general sense that I myself am one. These things are spatial, their parts hang together, they move as one, and so on. It is evident that their unity is for us both spatial and functional and the recognition of this unity is present in the category of thinghood as an essential element.

But these things are complex; I can note various aspects and pass judgments in which the thing is the given and accredited subject, a subject which natural realism regards as present to the mind. The assignment of attributes is thus an analysis of what is given as a sort of implicit whole. We note *that* this thing is of a certain color, *that* it is so large, etc. There is nothing mysterious in this process of judgment. The manifoldness of our judgments does not in any way

militate against the unity of that about which we are judging. Otherwise analysis would involve a contradiction.

Suppose, then, that, working within the framework of natural realism, our analysis has become complete, that we have passed a large number of judgments of which the thing is the subject. If our position is correct, these judgments do not make the thing disappear, but enrich it. The thing is *known as* all these things, as yellow, as of a certain length, etc. And this fact gives us our clue. The tendency to regard the thing as something distinct from its properties is the expression of a false logic which common sense could hardly understand. The thing is neither the sum of its properties nor something apart from them. The trouble with philosophy is that it has not been empirical enough; it has substituted associational psychology for actual experience. The thing is decidedly not given as a cluster of sensations, but as a thing of complex character *about which* we can make various judgments. When this empirical situation is once realized, it becomes obvious that the various judgments do not pretend to give "parts" of the thing out of which the thing can be composed. The thing is yellow and the thing is of a certain length; but the thing is not thereby proclaimed to be the sum of length and a yellow color. I, for one, resolutely deny that we have the right to interpret judgments of an attributive kind in this mechanical fashion, and I believe that any temptation to do so arises from a false sophistication due to the confusion of the standpoint of associational psychology with that of logic.

I can bring out my meaning by using Locke as my horrible example. This procedure will serve a double purpose since it will introduce us to the traditional category of substance in the proper way. From our standpoint, it should be noted that Locke does not realize the artificiality of his point of view; he does not see that analytic judgment works within a preceding organization of experience and meanings. To understand natural realism does not involve its acceptance, but philosophy, if it is to state our problems correctly, must commence with descriptive empiricism. Just because Locke does not do this, he is at a loss to account for the unity that so evidently accompanies the qualities reduced by him to ideas. "The mind takes notice that a certain number of these simple ideas go constantly together; which *being presumed to belong to one thing* and words being suited to common apprehensions, and made use of for quick despatch, are called, so united in one subject, by one name; which, by inadvertency we are apt afterward to talk of and consider as one simple idea. . . ." Thus Locke reads the result of a conditioned analysis as a *real division* into parts, in this way mistaking the nature of logical analysis. When he is haunted by a residue,

something left out, after he has sought to measure the sum of the "ideas" to the thing, he calls this residue a substratum "because not imagining how these simple ideas can subsist by themselves, we accustom ourselves to suppose some substratum wherein they do subsist and from which they result; which, therefore, we call substance." When Locke is occupying the standpoint of the scientific realism of his day, he names his ideas, qualities, or accidents, and supposes them to exist outside the mind and to be supported in some mysterious fashion by a substance. The theory-of-knowledge difficulty he tries to meet by doubling his ideas which are his data into primary qualities in the mind and their archetypes in the substance.

Now, in opposition to Locke's psychological atomism, the standpoint of descriptive empiricism simply points out that these various judgments about a thing enrich our *knowledge of the thing* or, to put it as common sense experiences it, our *apprehension of the nature of the thing* is deepened by noting that the thing is yellow, of a certain length, hard in texture, etc. The distinction between a substance and its attributes does not exist for natural realism; it is the thing which is yellow and so on. Here, as elsewhere, philosophy has often distorted experience; it has been metaphysical in the bad sense; it has substituted a conceptual construction for the actual experience.

What must be our own position in regard to the sphere of existence of these empirical things which we regard ourselves as apprehending when we occupy the standpoint of natural realism? When we bring our own theory of knowledge to bear, we realize at once that these things are thing-experiences and exist only within experience. They are objects of apprehension within experience, objects which are enriched by analytic and synthetic judgments. There is in them no substratum; they are as they are experienced as. As regards things, we are at the perceptual level. Berkeley was perfectly right in his attack upon Locke's position and in his declaration that sensible things, things immediately perceived, exist only within experience. As a matter of fact, they exist only within each individual's experience and there are as many sensible things as there are percipients.

In order to drive this position home, let us glance at some of the *pseudo*-problems which have arisen from an ungenetic treatment. Common sense does not reflect enough to have theories; it has only attitudes and meanings. Therefore, we shall glance at some of the traditional theories built up around what I have called the conceptual construction substituted for actual experience.

Suppose the concrete thing of experience to be broken up into a substance and its attributes; what is the substance and how does it

possess its attributes? It is with this *pseudo*-problem that Berkeley made merry to the bewilderment of all future philosophers and the apparent establishment of idealism. Now Berkeley had little difficulty in proving that the Lockean type of substance is unthinkable. How can qualities inhere in something which is unknown and unknowable? Are not inherence and support mere metaphors taken from concrete experience which have no relevance since they can not be taken literally? So soon as we make qualities *entities* we are unable to understand how a substance can possess them. Surely substance has no legal property rights in qualities! So much for substance and for matter as such a substance. Berkeley is right in what he disproved, not in what he thought that he proved.

But many thinkers have fallen back upon the distinction between primary and secondary qualities as somehow an answer to the above problem. There is in this attempt, however, a misunderstanding which perverts a distinction which is significant when properly approached. In the first place, as we shall show later, there is a total misunderstanding of science. No matter what the unphilosophical scientist may think, the scientist is not dealing with perceptual aspects of things. He works at a different genetic level, a fact which our study of scientific space and time has made clear. In the second place, so long as we maintain allegiance to the Lockean construction, the insurmountable objections referred to above remain in full force. How does substance possess the primary qualities? If they are qualities, they can not exist alone, since they are metaphysical adjectives, not substantives. And these difficulties, when their implications are understood, are of themselves sufficient to discredit the conceptual construction which we are attacking. There are, however, other objections in line with the suggestion made above that science does not really deal with primary qualities as these were understood by Locke and Berkeley.

The so-called secondary qualities are thought of as sensations produced in our experience by something acting upon our sense-organs. Rightly stated, this position is, I think, beyond attack. Our thing-experiences develop under the control of the physical world; critical realism accepts this unavoidable doctrine and fits it into its theory of knowledge. But, as both Berkeley and Hume showed, and as modern psychology has doubly proved, the aspects of our thing-experiences which are thought of by Locke as somehow primary, are in the same case with the secondary. All the sensational content of our thing-experiences must be regarded as controlled by our sense-organs. Again, perceptual space is, as we have seen, a filled space; we perceive colored surfaces and tactual surfaces, never empty space. In other words, all sensations are in the same

situation and on the same genetic level. If the historical distinction between primary and secondary qualities points to a significant truth, Locke and his defenders did not state this truth properly. Science does not assume primary qualities as literal features of physical things. Only natural realism at first or second remove does this. I would call Locke's realism natural realism at second remove.

It is, unfortunately, necessary to eradicate this notion of substance completely, to destroy it root and branch, in order to prepare the mind for a correct view of our knowledge of things. We have thus far contented ourselves with showing that the construction of substance and attributes results from a misinterpretation of empirical experience. The object of our apprehension and the subject of our perceptual judgments is the concrete thing. Our judgments enlarge the content of that which is apprehended. Such analytic judgments are at the same time synthetic. Hence, the subject is not diminished to a formal entity or abstract point of reference, but enlarged with each judgment. But we must now point out that this Lockean construction not only reflects a poor logic, because it looks at everything from the standpoint of associational psychology, but leads to all sorts of metaphysical absurdities which complete its overthrow.

If it is not enough to indicate the ambiguous position of the qualities which have one foot in the substance and one foot in the mind, let us call attention to the unintelligible status of the relation between the accidents and the substance. Since the substance is distinct from the accidents, these accidents can not be thought of as expressing its nature; otherwise, we would have an infinite regress, for the nature of the substance must itself consist of accidents and these would require a substance and so on indefinitely. Hence, we are confronted by a dilemma: if the substance has a nature it must consist of accidents which are unknowable and we are landed in a complete agnosticism; if the substance has not a nature, it becomes a mere nothing and we have no right even to postulate its existence. There can be no doubt, therefore, that the construction is not only untrue to experience, but also absolutely unintelligible. Any realism which wishes to withstand the attacks of idealism must shun this form; it must learn a lesson from Berkeley's criticism of Locke.

Having run this false type of realism to earth, we can now return with thorough satisfaction to the development of other possibilities. The thing of common sense is, then, a thing-experience dominantly perceptual in character; it exists only in the field of some individual's experience and contains no peculiar core or substratum. But this thing-experience which is apprehended within experience corresponds to a definite portion of the physical world which exists out-

side of experience. Such is the position of critical realism. In science, then, we try to gain knowledge of that portion of the physical world in all the ways that are open to us. By superposition, we determine its size in terms of some standard unit; in an analogous manner we discover its mass as a ratio with another unit; we seek also to measure its free energy, to decide how it reacts to certain processes like light-waves, to learn its chemical properties, etc. But these judgments are now thought of as referring to the physical thing and not to the perceptual thing. We are, in other words, at a different genetic level, a level reached by the scientist almost unconsciously by the pressure of his facts and his technique. The scientist has passed beyond perception, yet, as a rule, he retains the thing-experience of the perceptual level as a means of reference. It is the necessity of distinguishing precisely between the thing-experience and the physical thing that the thinker must recognize. Let us now examine the result of such a distinction for our problem.

The scientist discovers certain facts *about* things; these facts are stated in the form of propositions which claim to give knowledge of things as existences apart from our experience. In truth, so soon as we leave common sense with its immediate apprehension and commence to analyze the sort of knowledge which science does achieve, we are struck by the peculiar character of that knowledge. All quantitative knowledge is in terms of ratios, for instance; but a ratio can not, obviously, be an inherent property of any one thing. Does it not follow that the knowledge science possesses will not fit into the form of natural realism? For common sense, the thing is apprehended by itself and comparison is not necessary for knowledge; the thing is red, is large, is heavy, etc. These are aspects of the thing as this is presented. But scientific knowledge is not of this character; it involves a judgment founded on a technique of comparison in which the quantity of a thing is determined in terms of some standard unit. And this ratio is not determined by perception, but by superposition. Perception is merely an instrument to confirm the results of the superposition. Now the other properties of things are likewise statements about the thing in terms of what it does to processes like light-waves, to organisms like ourselves, to chemical substances, and so on. The majority of properties are statements of empirical laws in which the particular thing is a constant factor. But such empirical laws can not be the properties of a thing as properties are conceived on the pre-scientific level; they can not be assigned to one thing in isolation from other things. They are not apprehended features of the physical thing, since this can never be apprehended. It also goes without saying that such empirical laws can not inhere in the scholastic sense in any one sub-

stance. Locke's conceptual form betrays its origin in the view that knowledge is an apprehension of a thing; it is, therefore, unadapted to the kind of knowledge that science actually gives.

We saw that Locke's construction at the perceptual level could be best undermined by descriptive empiricism and by a study of the actual logic of attributive judgments. A similar method will give us the proper clue at the scientific level of knowledge. Scientific knowledge consists of judgments which are both analytic and synthetic—analytic so far as they concern different data, synthetic so far as these are organized together by the mind as all giving knowledge of the *same* thing. No more here than in the case of the apprehension of thing-experiences is there the slightest reason for the assumption of a substance in which properties inhere.

What, then, are properties? Is it right to retain this term when its correlative, substance, has been so completely discredited? It is certainly a vague term which is apt to be ambiguous because of its origin in the standpoint of natural realism with its presentative or apprehensional view of knowledge and its historical association with the substance-accident contrast. The majority of the properties of things are statements of what the thing does under certain conditions which are supposedly reproducible. The behavior of things, their reactions, are known in empirical laws such as those of physics and chemistry and biology and supposedly known more fully and deeply in explanatory laws and theories. This behavior rests on the nature of the thing as well as on the total conditions and is so far an index of this nature. But this nature must not be thought of as divisible into entities to be called properties which are somehow possessed by the thing. The far greater number of properties are really nothing more than what Locke called "powers" and the word, power, like that of capacity, is but the expression of our belief that a thing will react in a definite way under definite conditions, and that this reaction is the expression of its nature. We should say a thing has *such a nature that* it does so and so under such and such conditions. The very form of this statement declares that we gain knowledge of the nature of the thing, or, to put it more simply, knowledge of the thing. So long, then, as the category of property can be interpreted in accordance with this form, there can be no objections to it. Unfortunately, however, only the critical thinker interprets it in this fashion. Yet science never presents us with literal aspects of the physical world, aspects which can be intuited or somehow copied in ideas. The habits and prejudices due to natural realism have prevented philosophy from understanding scientific knowledge.

But a distinction must be made at this point. There are certain classes of judgments which we can always make about things. A

thing always has mass, although it is not always chemically active; it always has size, although it is not always optically active; it always has position, although it may not be moving in relation to its surroundings; it always has some structure, although it may not be doing work. Certain classes of judgments are, then, always applicable to things and these are not thought of as giving knowledge of the "powers" of things. We shall understand this distinction better, however, when we come to study causality. At present all we need to point out is that certain categories are always applicable to things, while others are not. Things are always extended, massive, structural, but not always moving or acting in certain ways. Yet the capacity to react in certain ways under certain conditions rests on the nature of things and thus involves more than a mere possibility.

To summarize: physical things in contradistinction to thing-experiences exist outside of experience, *i. e.*, they are not objects present to what common sense calls perception and naïve realism, intuition or apprehension. These physical things are known by means of propositions which claim to give knowledge of them. These propositions fall into natural classes differentiated by the fundamental concept characteristic of each, these concepts being called the categories by the philosopher. Thus things are known in terms of certain definite concepts which are regarded as valid of the physical world in the sense that they are the essential framework of the tested knowledge which we build up in experience. Specific propositions give knowledge of physical things, but this knowledge must not be interpreted in terms of the distinction between substance and its accidents which is a false form or category nowhere justified by experience and actually resulting from bad logic, bad psychology, and bad theory of knowledge. This conclusion we have further validated by showing that the only change involved in the passage from natural realism to critical realism is the adoption of the non-presentative view of knowledge for the presentative or intuitional characteristic of natural realism and of the theories of knowledge developed under its influence. The essential realistic attitude of common sense can be retained. We have *knowledge of* physical things, a knowledge consisting of propositions having the same reference, while we have empirical objects, sensible things, thing-experiences present to the attention within the individual's experience.

R. W. SELLARS.

REVIEWS AND ABSTRACTS OF LITERATURE

L'Année Psychologique. Fondée par ALFRED BINET. Publiée par HENRI PIÉRON. 19th year. Paris: Masson et Cie. 1913. Pp. 515.

The new editor, in a brief preface, pays a tribute to the memory of the founder, and restates the purpose of the *Année*, which will contain, as in the past, original works, especially those from the psychological laboratory of the Sorbonne, and analyses and critical reviews of the literature. The editor contributes two of the original articles, and nearly two hundred of the reviews.

Piéron's first article is a general survey of the "Le domaine psychologique" (pp. 1-26), in which he treats, rather sketchily, but judiciously, of the present state and prospects of psychology on its various sides. His reaction to the "behavior psychology" is interesting. He readily accepts the definition of psychology as the science of behavior, and holds that it is an objective science. Nevertheless he is not disposed to reject the introspective method, and does not believe that the use of this method is antagonistic to the objectivity of the science. He says: "There is a certain trait in human behavior, revealed by aid of language, which consists in being interested in mental functions and in observing them while they are functioning. . . . It is quite probable that introspection presupposes the existence of consciousness in the individual who devotes himself to it; but, for the psychologist who collects introspective reports, they have the same objectivity as meteorological documents, though the recording instruments may not be equally trustworthy." The generalizations of modern introspective psychology are based on a plurality of objective documents, and no longer on the mere subjective impressions of the psychologist. But, he adds, "introspection is not a universal necessity, and, above all, it is not necessary in order to comprehend what is studied by other methods. The assertion is often made that one could not make experiments on memory unless one knew from internal experience what memory was. Nothing is more false: one can study auditory images without possessing such images, or colored hearing without being able to understand what the 'color of a vowel' can mean. A deaf individual can study hearing, a color-blind individual can study the color sense."

Piéron's second article, "Experimental Studies on the Phenomena of Memory" (pp. 91-193), brings together results from two quite different sources—verbal memory in man, and adaptation to a repeated sensory stimulus in invertebrates—and finds so many correspondences as to indicate that the process is fundamentally the same in the two cases.

The experiments on man consisted mostly in the learning of "letter-squares" composed of 25, 50, or 72 numbers. The animal experiments were done with gastropods, which react to a sudden darkening of the aquarium by withdrawing into their shells, but cease to make this protective reaction after the stimulus has been repeated several times at short intervals. Experiments were made on (1) the effect of distributed learn-

ing; (2) on the curve of acquisition; and (3) on the curve of forgetting. Under the first head, there is introduced a valuable variant of a well-known experiment of Jost. Instead of keeping the interval between learning periods constant, while varying the duration of the learning periods, he keeps the duration of the learning period constant and varies the interval between them. Thus, with human subjects, a square of numbers was read once at each learning period, and the free interval between learning periods was varied, in different experiments, from 30 seconds to 48 hours. Intervals of one half to two minutes were distinctly less favorable than longer intervals; and five minutes seemed to be slightly less favorable than ten. From 10 minutes to 24 hours, the change was very slight, while 48 hours was perhaps slightly less favorable. There is, accordingly, an optimum interval, though it is not sharply limited. Piéron interprets this result in terms of the familiar theory of the ripening or consolidation of associations.

The question of an optimum interval was also asked in experiments on gastropods, in the following form: How many stimuli (darkenings of the aquarium) must be presented at a given interval, in order that the resulting adaptation shall last a defined time (as 10 seconds) after the cessation of the stimuli? There was an optimum interval, though it was much shorter (less than a minute) than in human learning.

In his studies of the curve of acquisition, Piéron is particularly interested in examining whether, as asserted by Charles Henry, this curve is essentially different according as a memory or a habit is being acquired. By comparing the learning of a list of numbers with the practise curve in stenography and typewriting, he comes to the conclusion that there is no clearly marked difference.

In studying the curve of forgetting, he points out a peculiar condition of the well-known experiments of Ebbinghaus, namely, that the subject learned several series of syllables in immediate succession, and thus hastened the process of forgetting. In some experiments of his own, Piéron had only one series learned at a time, and tested its retention after an interval in which no other memorizing had been done. He thus gets a much slower loss of memory, and, in fact, he gets a curve of forgetting which, while having the general character of the Ebbinghaus curve, requires a somewhat different equation. This curve and equation he also finds applicable to the disappearance of the adaptation effect in gastropods, though the absolute rate of forgetting is much more rapid with them.

Finally, the author considers the striking similarity between the curve of the development and evanescence of a sensation and the curve of formation and disappearance of a memory trace, and reaches the conclusion that the two processes, though running a similar course, are distinct. The curve of sensation runs a very rapid course, and has already come down to zero before the upward sweep of formation of an association has reached its maximum. Consequently, the memory trace can not be interpreted as a residue of sensation. What is called "primary memory," or the "memory after image," is, however, a sensorial persistence, to be distinguished from memory proper.

There are two other papers on memory. Heymans discusses the "two memories of Bergson" (pp. 66-74), the one active, motor, and at bottom physical, the other passive, imaginal, and purely spiritual. The former is exemplified by remembering a lesson which has been learned by several repetitions; it is identical with habit. The latter is exemplified by the revival of a momentary experience, as of a single one of the readings by which the lesson was learned. Heymans does not accept this distinction, but holds that what remains in the remembered lesson, after several readings, is what is common to these several experiences, what is dissimilar having disappeared by mutual inhibition. "In fine, it appears to me that the memory image is nothing but a nascent habit, and a habit nothing but the memory image fixed by repetition, and isolated from its changing circumstances."

Foucault studies the influence of the length of a series of words to be learned on the time of learning and on retention (pp. 218-235). He is here working on familiar ground, in the hope of fixing the relations more precisely than has been done hitherto. He finds the following law closely followed by his own results and by others in the literature: the time for continuous learning increases as the square of the number of words in the series. Time is here a representative of work. The law breaks down for very short series, where memory proper does not come into play, and for series so long as to bring on fatigue before they are learned. In regard to retention, it has long been known that a longer series is retained better than a short, when each is learned just to the point of correct recitation. His results on this point, not very extensive, to be sure, can be formulated by saying that the proportion forgotten is inversely proportional to the length of the list.

The author of this paper makes some interesting remarks regarding the attitude which should be taken towards such mathematical formulations of facts. He rejects the attitude now in vogue of regarding them as mere empirical approximations, and holds that the slight divergences that are sure to appear between observed and calculated values are due to the complication of conditions, and not to any fundamental incapacity of mathematical thought to get to the bottom of things. If the latter were the case, it would, he believes, be impossible to explain how mathematical formulæ can prove to be approximately correct.

Foucault also contributes an article on "The most general laws of mental activity" (pp. 75-90). He first raises the question of the measurability of mental work. To be measured a magnitude must be homogeneous and continuous, conditions which are at first thought not realized in mental performances. But the condition of homogeneity can be met by providing suitable material for work, as has been accomplished notably in memory experiments; and the rhythmic regularity of work in performing a series of similar tasks is a satisfactory substitute for continuity. Accordingly, mental work can be measured under experimental conditions. The first law of mental work is that when it is directed to a constant end, and performed under constant conditions, the time consumed can be taken as a measure of the work. The validity of this measure is

indicated by the approximate constancy of the time required to accomplish the same task. Some variation, however, always remains, and the second and third laws are concerned with the variability of time in the repeated performance of the same or equivalent tasks. The variability increases with the intellectuality or "quality" of the work, and decreases, relatively and very slightly, with the quantity.

Boquet writes on "The investigations of astronomers on the decimal equation" (pp. 27-65). The decimal equation is akin to the personal equation, and was first noticed by the astronomers Hartmann and Pierce. When the fraction of the unit of a scale has to be estimated in tenths, the several tenths are not recorded with equal frequency, as they should be in the long run, but in certain proportions which are characteristic of the individual observer. The following table gives the frequency per thousand observations of the records for each tenth by three astronomical observers:

Tenths	0	1	2	3	4	5	6	7	8	9
1st observer	113	105	193	111	36	44	29	58	185	125
2d observer	250	77	103	61	114	85	47	74	95	94
3d observer	169	78	132	81	50	58	57	113	141	121

The observers differ considerably, but each observer is found to give nearly the same proportions in different sets of 1,000 observations. The decimal equation appears in various sorts of measurement, and a similar phenomenon appears when the division is into fifths instead of tenths. There are also individual peculiarities or "equations" in bisecting a line or space. A genuine psychological explanation has not been reached, but the formulation of Pierce still seems to fit the facts; according to this, the observer makes use in all such estimations of a "personal scale" which is more or less distorted.

Rabaud gives experimental and statistical evidence against the existence of an "Instinct of Isolation in Insects" (pp. 194-217). It is true that in a single ripe nut or acorn no more than a single larva is usually found, but this isolation does not result from any instinct on the mother's part to avoid nuts in which an egg has already been laid. In some cases, the small number of females as compared with the number of nuts makes it improbable that more than one egg shall get deposited in the same nut, and a count shows that the number of nuts receiving two eggs is about what is demanded by probability. In other cases, where the number of females is comparatively large, it frequently happens that more than one egg is deposited in the same nut, and more than one larva develops, each one at first being enclosed in a cavity of its own making. As these cavities become larger and coalesce, the two larvæ proceed to fight, until one is driven out or killed. In these cases the isolation is secondary. The fighting instinct which results in this secondary isolation can hardly be regarded as directed towards isolation, since it occurs also in species other than endoparasites.

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Nietzsches Gefühlslehre. HANS SCHAFFGANZ. Leipzig: Felix Meiner. 1913. Pp. viii + 133.

The main purpose of this monograph is to show that Nietzsche's philosophy is derived from a single psychical principle, namely, *Gefühl*. By this means the author hopes also to exhibit the unitary character of the development of Nietzsche's thought in all the three periods, and the essential originality of his doctrine. In the first period, in spite of the powerful appeal that Schopenhauer made to him, Herr Schaffganz thinks it is clear that Nietzsche's fundamental principle is feeling rather than will. The argument by which he seeks to show this is not altogether convincing. It is based partly upon his conception of the Dionysian tendency in the *Geburt der Tragödie* and partly upon his interpretation of various discussions of esthetic problems in the *Nachlass* of this period. As to the former, even if Nietzsche held that the Dionysian tendency penetrates the inner nature of the absolute (p. 11), it still remains to be proved that this tendency is to be identified with feeling rather than will. And as to the evidence of the *Nachlass*, Herr Schaffganz seems to overlook the fact that it contains various indications that at this time Nietzsche follows Schopenhauer in conceiving ultimate reality as will.

In the second period Nietzsche frees himself from the metaphysical tendencies of his earlier thought and limits himself to psychological investigation. Instead of inquiring as to the essence of *Gefühl*—which, as the absolute, must be unknowable—he now considers it purely as psychical activity and attempts an analysis of its various functions. He designates *Empfindung* as the fundamental function and seeks to derive all the others from it. Although this period is devoted chiefly to psychological investigation, Nietzsche seems to have been little influenced by the contemporary literature of the science, and his method is very different from that of professional psychologists. His results are gained more often by an "*einzigartige Kunst*," by "*intuitive Erkenntnis des eigenen Seelenlebens*," than by the strict method of modern psychology. We see in him a conflict between two tendencies, the one inclining him to the use of exact psychological methods and the other driving him beyond the boundaries of empirical investigation.

In the third period Nietzsche for the first time becomes definitely conscious of his *Gefühlsproblem*. In consequence, his opposition to scientific psychology increases, so that he finally altogether denies the possibility of accurate self-observation. His cutting loose from empirical psychology removes a disturbing influence in the development of his *Gefühlslehre* and permits his "intuitive self-perception" to work freely. It now becomes still more obvious that he finds the confirmation of all his hypotheses in his own inner life. He constantly emphasizes the physical basis of this inner life, but never succeeds in harmonizing his biological theories with the results of his self-perception. The third period, with its abandonment of empirical psychology, marks the return to metaphysics—a metaphysics, however, which, like that of the first period, is psychological in character. A comparison of the three periods exhibits them as stages in the develop-

ment of a unitary thought. In the first, *Gefühl* is by implication identified with the absolute, but Nietzsche does not try to determine its inner nature. The second period gives us no deeper insight into the essence of feeling, but is occupied with an analysis of the feeling-functions. In the third, an attempt is made to determine the essence of *Gefühl*, and on the basis of his personal experiences Nietzsche characterizes it as *der Wille zur Macht*, which he designates as *das Ungewordene* that forms the ground of all becoming (p. 77). This designation seems to imply an identification of *Wille zur Macht* with the absolute, and Herr Schaffganz maintains that through it Nietzsche has gained a new insight into the nature of ultimate reality (pp. 77 ff.). None the less he insists that the *Wille zur Macht* has little relation to Schopenhauer's will (pp. 2 ff.) and that it is regarded by Nietzsche, not as independent, but as a function of *Gefühl*. In his attempt to defend the latter statement (pp. 121 ff.) it seems to me that he fails to distinguish between will as developed, clearly conscious volition, which obviously is complex and obviously rests upon feeling, and the *Wille zur Macht*, which, whatever its nature, is something quite different. Whether *Gefühl* or *Wille zur Macht* is primary, it is evident that they are closely related, and it is probable that Nietzsche himself did not sharply differentiate them. But in any event the *Wille zur Macht* seems to me an aspect of Nietzsche's philosophy in which it approaches closely to Schopenhauer's; and to deny the influence of Schopenhauer here is to misinterpret Nietzsche. If Herr Schaffganz wished to exhibit Nietzsche's originality he would have done better by distinguishing between *Wille zur Macht* and *Wille zum Leben* and by dwelling upon the unique character of Nietzsche's ethics.

The author makes little attempt at criticism of Nietzsche's doctrine. His purpose is exposition, and he has given us a sympathetic and interesting study. He seems to me, however, somewhat too anxious to exhibit Nietzsche as a systematic philosopher with clearly defined metaphysical doctrines.

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JOURNALS AND NEW BOOKS

MIND. January, 1915. *The Rise and Fall of the Platonic Kallipolis* (pp. 1-15): F. V. MERRIMAN. — The rise is determined teleologically, the decline by efficient causality. Why this difference in treatment? Viewed as organization the two types of city are too alike, so much alike that Euripides praised tyranny and Plato tried to build one upon the other in Sicily. Evil does obtain a certain success if it follow principles of organization neither good nor bad, but efficient. *Mr. Russell and Some Recent Criticisms of His Views* (pp. 16-28): OLIVER STRACHEY. — A criticism of three articles in *Mind* for April, 1914, dealing with some of Mr. Russell's opinions. *Where do Perceived Objects Exist?* (pp. 29-36): DURANT DRAKE. — Perceived objects are as real as real-objects; but they are not

those particular real-objects which they represent. They exist in the brain, not the perceived brain, but the real brain. This position may be called representative realism. *The Vedantic Good* (pp. 37-59): P. NARASIMHAM.—Vedantic ethic trains man toward a clearer apprehension of unity by asking him to act as if he really experienced unity. The ideal is one of divine solidarity of the world-life as a fact of one's immediate consciousness, the recognition of which places one beyond good and evil. *Discussions: Analysis of Categorical Propositions* (pp. 60-64): E. E. C. JONES. *Dr. Alexander on Mind and Its Objects* (pp. 65-69): J. E. TURNER. *The Limits of Logical Validity* (pp. 70-74): E. MAYO. *The Opponents of Formal Logic* (pp. 75-79): H. S. SHELTON. *The Classification of Terms* (pp. 80-85): C. A. MERCIER. *Critical Notes*: R. Eucken, *Main Currents of Modern Thought*: R. F. A. HOERNLÉ. F. Enriques, *Problems of Science*: C. D. BROAD. A. Sidgwick, *Elementary Logic*: H. V. KNOX. E. Hammacher, *Hauptfragen der modernen Kultur*: B. BOSANQUET. Prof. Aliotta, *The Idealistic Reaction against Science*: C. D. BROAD. E. Juvalta, *Il Vecchio e Il Nuovo Probleme della Morale*: A. W. BENN. *New Books. Philosophical Periodicals. Notes and News.—Mind Association: Full List of Officers and Members.*

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NOTES AND NEWS

THE Nicholas Murray Butler medals were awarded for the first time at the Columbia University Commencement on June 2. A medal in gold is awarded every five years for the most distinguished contribution made during the preceding five-year period, anywhere in the world, to philosophy or to educational theory, practise, or administration. A medal in silver or bronze is awarded annually to that graduate of Columbia University in any of its parts who has during the year preceding shown the most competence in philosophy or in educational theory, practise, or administration. The gold medal was awarded to the Hon. Bertrand Russell, lecturer and late fellow of Trinity College, Cambridge. The silver medal was awarded to Dr. Ellwood Patterson Cubberly, professor of education, Leland Stanford Junior University. We print the following from the report of the Committee appointed by President Butler to recommend to the Trustees of Columbia University names of persons from whom, in the Committee's opinion, the choice should be made for the conferring of the medals:

"In making recommendations for the award of the Gold Medal the

Committee found themselves considerably embarrassed in attempting to decide questions of the relative importance of contributions, and particularly the question of the most distinguished contribution to philosophy or education anywhere in the world during the last five years. They feel that their recommendations will be less open to criticism and objection if they are regarded as based upon a recognition of contributions which have won throughout the world the distinction of shaping and controlling the dominant philosophical or educational interest during the period named. Guided by this consideration, the Committee were of the opinion that such contributions are to be found principally in philosophy, and so make no recommendations in the field of education. They were also of the opinion that the type of logical studies represented in the work of the Hon. Bertrand Russell have been the distinctively determining philosophical interest during the period under consideration. Other philosophical interests have, in their opinion, taken a less distinctive place and have been more relevant to philosophical discussion of the preceding decade. Mr. Russell in his collaboration with Professor Whitehead in the 'Principia Mathematica,' now in its third volume, in his 'Problems of Philosophy,' in his 'Knowledge of the External World,' and in his articles in the *Monist*, has made a contribution to philosophical discussion which for originality and force is, we believe, generally recognized as entitling his work to first consideration.

"The Committee were of the opinion that the work of Professor Ellwood Patterson Cubberly so far surpassed during the current year that of any other graduate of Columbia in the field of philosophy or education that it was needless to recommend any other graduate for the award of the Silver or Bronze Medal. His work entitled, 'State and County Educational Reorganization—the revised constitution and school code of the state of Osceola,' is a constructive application of the principles and facts of state and county school administration as expressed in the revision of the article on education of the constitution, and the revised school code which follows it, for the hypothetical state of Osceola. It is a synthetic effort to apply the varied results of administrative experience with public education in the United States to a single plan of reorganization."

PROFESSOR J. MARK BALDWIN, honorary professor of the University of Mexico, formerly professor of philosophy and psychology in the Johns Hopkins University of Baltimore, has been appointed Herbert Spencer lecturer for the year 1915-16.

ON the occasion of the inauguration of Dr. Frank H. Goodnow as president of Johns Hopkins University the honorary degree of Doctor of Laws was conferred upon Dr. John Dewey, professor of philosophy in Columbia University.

PROFESSOR R. C. LODGE, who has been this year at the University of Minnesota, has been appointed professor of philosophy and psychology at the University of Alberta.

DR. HENRY SUZALLO, professor of the philosophy of education in Teachers College, Columbia University, has been elected president of the University of Washington.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

THE SUBJECT-MATTER OF METAPHYSICAL INQUIRY

A NUMBER of biologists holding to the adequacy of the mechanistic conception in biology have of late expressed views not unlike those clearly and succinctly set forth in the following quotation: "If we consider the organism simply as a system forming a part of external nature, we find no evidence that it possesses properties that may not eventually be satisfactorily analyzed by the methods of physico-chemical science; but we admit also that those peculiarities of ultimate constitution which have in the course of evolution led to the appearance of living beings in nature are such that we can not well deny the possibility or even legitimacy of applying a vitalistic or even biocentric conception to the cosmic process as a whole."¹

The problems connected with the organism as a part of external nature are referred to in the context of the quotation as scientific problems; those connected with the peculiarities of ultimate constitution as metaphysical. The context also shows that ultimate constitution is conceived in a temporal sense. Metaphysical questions are said to be those having to do with "ultimate origins." Such questions lie quite beyond the application of scientific method. "Why it [nature] exhibits certain apparently innate potentialities and modes of action which have caused it to evolve in a certain way is a question which really lies beyond the sphere of natural science." These "apparently innate potentialities and modes of action" which have caused nature as a whole to evolve in the direction of living beings are identified with "ultimate peculiarities"; and it is with reference to them that the biocentric idea has a possible legitimate application. The argument implies that when we insist upon the adequacy of the physico-chemical explanation of living organisms, we are led, in view of the continuity of evolution of organisms from non-living things, to recognize that the world out of which life developed "held latent or potential within itself the possibility of life." In considering such a

¹ Professor Ralph S. Lillie, *Science*, Vol. 40, page 846. See also the references given in the article, which is entitled "The Philosophy of Biology-Vitalism vs. Mechanism."

world and the nature of the potentiality which caused it to evolve living beings, we are forced, however, beyond the limits of scientific inquiry. We pass the boundary which separates it from metaphysics.

Thus is raised the question as to the nature of metaphysical inquiry. I wish to suggest that while one may accept as a preliminary demarcation of metaphysics from science the more "ultimate traits" with which the former deals, it is not necessary to identify these ultimate traits with temporally original traits—that, in fact, there are good reasons why we should not do so. We may also mark off the metaphysical subject-matter by reference to certain irreducible traits found in any and every subject of scientific inquiry. With reference to the theme of evolution of living beings, the distinctive trait of metaphysical reflection would not then be its attempt to discover some temporally original feature which caused the development, but the irreducible traits of a world in which at least some changes take on an evolutionary form. A world where some changes proceed in the direction of the appearance of living and thinking creatures is a striking sort of a world. While science would trace the conditions of their occurrence in detail, connecting them in their variety with their antecedents, metaphysics would raise the question of the sort of world which *has* such an evolution, not the question of the sort of world which causes it. For the latter type of question appears either to bring us to an *impasse* or else to break up into just the questions which constitute scientific inquiry.

Any intelligible question as to causation seems to be a wholly scientific question. Starting from any given existence, be it a big thing like a solar system or a small thing like a rise of temperature, we may ask how it came about. We account for the change by linking up the thing in question with other specific existences acting in determinate ways—ways which collectively are termed physico-chemical. When we have traced back a present existence to the earlier existences with which it is connected, we may ask a like question about the occurrence of the earlier things, viewed as changes from something still earlier. And so on indefinitely; although, of course, we meet practical limits in our ability to push such questions beyond a certain indefinite point. Hence it may be said that a question about ultimate origin or ultimate causation is either a meaningless question, or else the words are used in a relative sense to designate the point in the past at which a particular inquiry breaks off. Thus we might inquire as to the "ultimate" origin of the French language. This would take us back to certain definite antecedent existences, such as persons speaking the Latin tongue, others speaking barbarian tongues; the contact of these peoples in war, commerce, political

administration, education, etc. But the term "ultimate" has meaning only in relation to the particular existence in question: French speech. We are landed in another historic set of existences, having their own specific antecedents. The case is not otherwise if we ask for the ultimate origin of human speech in general. The inquiry takes us back to animal cries, gestures, etc., certain conditions of intercourse, etc. The question is, how one set of specific existences gradually passed into another. No one would think of referring to latent qualities of the Latin speech as the cause of the evolution of French; one tries to discover actual and overt features which, *interacting* with other equally specific existences, brought about this particular change. If we are likely to fall into a different mode of speech with reference to human language in general, it is because we are more ignorant of the specific circumstances under which the transition from animal cries to articulate speech with a meaning took place. Upon analysis, reference to some immanent law or cause which forced the evolution will be found to be a lazy cloak for our ignorance of the specific facts needed in order to deal successfully with the question.

Suppose we generalize the situation still more. We may ask for the ultimate origin of the entire present state of things. Taken *en masse*, such a question is meaningless. Taken in detail, it means that we may apply the same procedure distributively to each and any of the things which now exist. In each case we may trace its history to an earlier state of things. But in each case, *its* history is what we trace, and the history always lands us at some state of things in the past, regarding which the same question might be asked. That scientific inquiry does not itself deal with any question of ultimate origins, except in the purely relative sense already indicated, is, of course, recognized. But it also seems to follow from what has been said that scientific inquiry does not generate, or leave over, such a question for some other discipline, such as metaphysics, to deal with. The contrary conception with respect to the doctrine of evolution is to be explained, I think, by the fact that theology used to have the idea of ultimate origin in connection with creation, and that at a certain juncture it was natural to regard the theory of evolution as a substitute or rival of the theological idea of creation.

If all questions of causation and origin are specific scientific questions, is there any place left for metaphysical inquiry at all? If its theme can not be ultimate origin and causation, is metaphysics anything but a kind of pseudo-science whose illusory character is now to be recognized? This question takes us to the matter of whether there are ultimate, that is, irreducible, traits of the very existences with

which scientific reflection is concerned. In all such investigations as those referred to above we find at least such traits as the following: Specifically diverse existences, interaction, change. Such traits are found in any material which is the subject-matter of inquiry in the natural science. They are found equally and indifferently whether a subject-matter in question be dated 1915 or ten million years B.C. Accordingly, they would seem to deserve the name of ultimate, or irreducible, traits. As such they may be made the object of a kind of inquiry differing from that which deals with the genesis of a particular group of existences, a kind of inquiry to which the name metaphysical may be given.²

It may well seem as if the fact that the subject-matter of science is always a plurality of diverse interacting and changing existences were too obvious and commonplace to invite or reward investigation. Into this point I shall not go, beyond pointing out, in connection with the present theme, that certain negative advantages in the economizing of intellectual effort would at least accrue from the study. Bare recognition of the fact just stated would wean men from the futility of concern with ultimate origins and laws of causation with which the "universe" is supposed to have been endowed at the outset. For it would reveal that, whatever the date of the subject-matter which may be successfully reflected upon, we have the same situation that we have at present: diversity, specificity, change. These traits have to be begged or taken in any case. If we face this fact without squeamishness we shall be saved from the recurrent attempts to reduce heterogeneity to homogeneity, diversity to sheer uniformity, quality to quantity, and so on. That considerations of quantity and mathematical order are indispensable to the successful prosecution of researches into particular occurrences is a

² The name at least has the sanction of the historical designation given to Aristotle's consideration of existence as existence. But it should be noted that we also find in Aristotle the seeds (which, moreover, have at places developed into flourishing growths in his own philosophy) of the conception of metaphysics rejected above. For he expressly gives the more general traits of existence the eulogistic title "divine" and identifies his first philosophy with theology, and so makes this kind of inquiry "superior" to all others, because it deals with the "highest of existing things." While he did not himself seek for this higher or supreme real in time, but rather located it, in its fullness of reality, just beyond space, this identification of existence as such with the divine led to such an identification the moment theology became supremely interested in "creation." But unless one approaches the study of the most general traits of the matter of scientific inquiry with theological presuppositions, there is, of course, no ground for the application to them of eulogistic predicates. There is no ground for thinking that they are any better or any worse, any higher or any lower, than other traits, or that any peculiar dignity attaches to a study of them.

precious fact. It exhibits certain irreducible traits of the irreducible traits we have mentioned, but it does not replace them. When it tries to do so it cuts the ground out from under its own feet.

Let me emphasize this point by comment on a further quotation. "If we assume constancy of the elementary natural processes, and constancy in the modes of connection between them—as exact observation forces us to do—there seems no avoiding the conclusion that—given an undifferentiated universe at the start—only one course of evolution can ever have been possible. Laplace long ago perceived this consequence of the mechanistic view of nature, and the inevitability of this conclusion has never been seriously disputed by scientific men. Nevertheless, this is a very strange result, and to many has seemed a *reductio ad absurdum* of the scientific view as applied to the whole of nature."

Note that the inevitable conclusion as to the predetermined course of evolution and the apparent incredibility of the conclusion both depend upon the premise "given an undifferentiated universe at the start." Now this is precisely a premise which a scientific view can not admit, for science deals with any particular existence only by tracing its occurrence to a plurality of prior changing interacting things. Any Laplacean formula would, in any case, be a formula for the structure of *some* existence in the world, not for the world as a "whole." The scientific grounds which make it impossible to take the world *en masse* at the present time and to give a comprehensive formula for it in its entirety apply even more strongly, if possible, to some earlier state of affairs. For such a formula can be reached only by tracing back a specific present phenomenon to its specific antecedents.

A curious illusion exists as to formulæ for the ancient states of nature. It is frequently assumed that they denote not merely some absolute original (which is impossible), but also one from which later events unroll in a mathematically predetermined fashion. We seem to be passing in a one-sided way from the earlier to the later. The illusion vanishes when we ask where the formula came from. How was it obtained? Evidently, by beginning with some present existence and tracing its earlier course, till at some time (relevant to the object of the inquiry) we stop and condense the main features of the course into a formula for the structure of the state of things at the date where we stop. Instead of really deducing or deriving the course of subsequent events from an original state, we are simply taking out of a formula the traits which we have put into it on the basis of knowledge of subsequent events. Let the present state be anything you please, as different as may be from what is actually

found, and it will still be true that we could (theoretically) construct a comprehensive formula for its earlier estate. In short, as a matter of fact, a Laplacean formula merely summarizes what the actual course of events has been with respect to some selected features. How then can it be said to describe an original state of nature in virtue of which just such and such things have necessarily happened? A statement that the world is thus and so can not be tortured into a statement of how and why it must be as it is. The account of how a thing came to be as it is always starts and comes back to the fact that it *is* thus and so. How then can this fact be derived according to some law of predestination from the consideration of its own prior history? For, I repeat, this history is *its* history.³

This discussion, however, oversimplifies matters. It overlooks the extent to which inference as to a prior state of affairs is dependent upon the diversity and complexity of what is now observed. We should be in a hard case in trying to fix upon the structure of the Latin language if our sole datum were, say, the French language. As matter of fact, in considering the growth of the French tongue we have other Romance languages to fall back upon. Above all, we have independent evidence as to the characteristics of Latin speech. If we had not, we should be reasoning in a circle. Science is rightly suspicious of accounts of things in terms of a hypothesis for whose existence nothing can be alleged save that if it existed it would or might account for something which is actually found. Independent evidence of the existence of such an object is required. This consideration has an interesting application to the question in hand. It brings out clearly the absurdity involved in supposing that any formula, of the Laplacean type, about some earlier state of existence, however comprehensive, is comprehensive enough to cover the whole scope of existence of that earlier time.

Let us suppose the formula to be descriptive of a primitive state of the solar system. Not only must it start from and be framed in terms of what *now* exists, but the present datum must be larger than the existing solar system if we are to escape reasoning in a circle. In such cosmological constructions, astronomers and geologists rely upon observation of what is going on outside of the solar system. Without such data, the inquiry would be hopelessly crippled. The stellar field now presents, presumably, systems in all stages of formation. Is there any reason for supposing that a like state of affairs did not present itself at any and every prior time? Whatever for-

³ Compare Woodbridge, "Evolution," *Philosophical Review*, Vol. 21, page 137.

mula is arrived at for the beginning of our present solar system describes, therefore, only one structure existing amid a vaster complex. A state of things adequately and inclusively described by the formula would be, by conception, a state of things in which nothing could happen. To get change we have to assume other structures which interact with it, existences not covered by the formula.

As a matter of fact, the conception of a solar system seems to have exercised an hypnotic influence upon Newton's successors. The gathering together of sun, planets and their satellites, etc., into a system which might be treated as an individual having its own history was a wonderful achievement, and it impressed men's imaginations. It served for the time as a kind of symbol of the "universe." But as compared with the entire stellar field, the solar system is, after all, only a "right little, tight little island." Yet unless its complex context be ignored the idea of "an undifferentiated universe" which, by some immanent potential force, determined everything which has happened since, could hardly arise.⁴ That the French language did not evolve out of Latin because of some immanent causality in the latter we have already noted. It is equally true that the contact and interaction of those speaking Latin with those speaking barbaric tongues were not due to the fact that they spoke Latin, but to independent variables. Internal diversity is as much a necessity as something externally heterogeneous.⁵

The consideration throws light, I think, upon the meaning of potentiality with reference to any state of things. We never apply the term except where there is change or a process of becoming. But we have an unfortunate tendency to conceive a fixed state of affairs and then appeal to a latent or potential something or other to effect change. But in reality the term refers to a characteristic of change. Anything changing might be said to exhibit potentiality with respect to two facts: first, that the change exhibits (in connection with interaction with new elements in its surroundings) qualities it did not show till it was exposed to them and, secondly, that the changes in which these qualities are shown run a certain course. To say that an apple has the potentiality of decay does not mean that it has latent or im-

⁴ One who turns to Spencer's chapter on the "Instability of the Homogeneous" will perceive that his proof of its instability consists in showing that it was really already heterogeneous.

⁵ Some contemporary metaphysical theories attempt to start from pure "simple" entities and then refer change exclusively to "complexes." This overlooks the fact that without internal diversification in the alleged simple entity, a complex entity would no more exhibit change than a simple one. The history of the doctrine of atoms is instinctive. Such a metaphysics transgresses the conditions of intelligent inquiry in exactly the same way as the metaphysics of ultimate origins.

plicit within it a causal principle which will some time inevitably display itself in producing decay, but that its existing changes (in interaction with its surroundings) will take the form of decay, *if* they are exposed or subjected to certain conditions not now operating upon them. Potentiality thus signifies a certain limitation of present powers, due to the limited number of conditions with which they are in interaction plus the fact of the manifestation of new powers under different conditions. To generalize the idea, we have to add the fact that the very changes now going on have a tendency to expose the thing in question to these different conditions which will call out new modes of behavior, in other words, further changes of a different kind. Potentiality thus implies not merely diversity, but a progressively increasing diversification of a specific thing in a particular direction. So far is it from denoting a causal force immanent within a homogeneous something and leading it to change.

We may say then that an earlier condition of our earth was potential with life and mind. But this means that it was changing in a certain way and direction. Starting where we must start, with the present, the fact or organization shows that the world is of a certain kind. In spots, it *has* organization. Reference to the evolution of this organization out of an earlier world in which *such* organization was not found, means something about that earlier condition—it means that it was characterized by a change having direction—that is, in the direction of vital and intelligent organization. I do not see that this justifies the conclusion that that earlier world was biocentric or vitalistic or psychic. Yet two conclusions seem to follow. One is negative. The fact that it is possible and desirable to state the processes of an organized being in chemico-physical terms does not eliminate, but rather takes for granted whatever peculiar features living beings have. It does not imply that the distinguishing features of living and thinking beings are to be explained away by resolution into the features found in non-living things. It is the *occurrence* of these peculiar features which is stated in physico-chemical terms. And, as we have already seen, the attempt to give an account of any occurrence involves the genuine and irreducible existence of the thing dealt with. A statement of the mechanism of vital and thinking creatures is a statement of *their* mechanism; an account of their production is an account of *their* production. To give such an account does not prove whether the existence in question is a good thing or a bad thing, but it proves nothing at all if it puts in doubt the specific existence of the subject-matter investigated.

The positive point is that the evolution of living and thinking beings out of a state of things in which life and thought were not

found is a fact which must be recognized in any metaphysical inquiry into the irreducible traits of the world. For evolution appears to be just one of the irreducible traits. In other words, it is a fact to be reckoned with in considering the traits of diversity, interaction, and change which have been enumerated as among the traits taken for granted in all scientific subject-matter. If everything which is, is a changing thing, the evolution of life and mind indicates the nature of the changes of physico-chemical things and therefore something about those things. It indicates that as purely physical, they are still limited in their interactions; and that as they are brought into more and complex interactions they exhibit capacities not to be found in an exclusively mechanical world. To say, accordingly, that the existence of vital, intellectual, and social organization makes impossible a purely mechanistic metaphysics is to say something which the situation calls for. But it does not signify that the world "as a whole" is vital or sentient or intelligent. It is a remark of the same order as the statement that one is not adequately acquainted with water or iron until he has found it operating under a variety of different conditions, and hence a scientific doctrine which regards iron as essentially hard or water as essentially liquid is inadequate. Without a doctrine of evolution we might be able to say, not that matter *caused* life, but that matter under certain conditions of highly complicated and intensified interaction is living. With the doctrine of evolution, we can add to this statement that the interactions and changes of matter are themselves of a kind to bring about that complex and intensified interaction which is life. The doctrine of evolution implies that this holds good of any matter, irrespective of its date, for it is not the matter of 1915, as caused by matter that has now ceased to be, which lives. The matter which was active ten million years ago now lives: this is a feature of the matter of ten million years ago.

I am, however, getting beyond my main point. I am not concerned to develop a metaphysics; but simply to indicate one way of conceiving the problem of metaphysical inquiry as distinct from that of the special sciences, a way which settles upon the more ultimate traits of the world as defining its subject-matter, but which frees these traits from confusion with ultimate origins and ultimate ends—that is, from questions of creation and eschatology. The chief significance of evolution with reference to such an inquiry seems to be to indicate that while metaphysics takes the world irrespective of any particular time, yet time itself, or genuine change in a specific direction, is itself one of the ultimate traits of the world irrespective of date.

JOHN DEWEY.

RELATION OF RACE TO THOUGHT EXPRESSION

WEBSTER defines race as "A division of mankind possessing constant traits, transmissible by descent, sufficient to characterize it as a distinct and permanent type of the genus *homo*."

In general, race classification has been based upon purely physical characteristics—many authorities virtually deny that there is any marked mental distinction between races. Of these physical characteristics the most important and generally recognized are skin-color, form of hair, and shape of skull, particularly the cephalic index and facial angle. The number of races so distinguished must, of course, vary according to how marked a distinction is required to justify classification as a separate race. Quatrefarges recognizes only three races: Caucasian, Ethiopic, and Mongolic. That other races distinct from any now existing have lived in prehistoric times is universally admitted (for example, the man of Neanderthal). Whether all men descended from a common ancestor or not is an open question, and one of no great interest for us. It is sufficient to know that beyond all doubt racial distinctions fully as marked as at present antedate the ice age. These old races were not, however, so far as can be shown, the direct ancestors of any modern races. In other words, *all* modern races are unquestionably blends. Quatrefarges shows conclusively that blending of races began in Europe as far back as the time of the cave-men. These blends form the bases for all modern races and peoples.

The physical basis for race classification given above seems to the writer to be both one-sided and inadequate. Races and peoples differ quite as much in their mental as in their physical make-up; though these differences are more subtle and more easily hidden by training and education. Most writers are inclined to treat mental race distinctions rather lightly, in general explaining away the facts by saying that the so-called racial differences are really only differences between individuals, and that individuals of any race can easily be found exhibiting those characteristics said to be typical of any other race; or if this does not seem to fit the facts it is said that environment and not race is the true cause of mental differences, that certain peoples are more voluble, suggestible, or what not than others simply because of physical and social surroundings. It is said, for example, that many Englishmen are as excitable as Frenchmen, and that some of the most phlegmatic of men are Frenchmen, that the negro race has produced such men as Dubois and Booker Washington, and the Anglo-Saxon race many a stupid blockhead. The following is a fair illustration of the second contention: The

sunny climate, language, and traditions of the Italians make them differ mentally from the North-Germans with their gloomy climate, guttural language, and somber traditions; that if the Germans could be transplanted into Italy, and the Italians into Germany, leaving customs, language, and traditions behind them, but yet carrying their blood intact, their mental traits would be completely exchanged.

Without denying the importance of climate, custom, language, or tradition, and also admitting that isolated individuals tend to become more like the surrounding race than like their own race, mentally speaking (psychological mass action law), we may state that mental states are in a very large degree dependent upon cerebral structure, and that there is no more reason for denying the importance of cerebral structure as a basis for race qualification than there is for denying that of facial angle—both are purely physiological (or in the last analysis physical). This must not be taken to mean that mind is a "product" of the brain, but that there is a close parallelism between neural structure and mental activity, can hardly be doubted in the light of the facts of physiological psychology.

There are some who, emphasizing the quality of mind and matter, argue that similarity of cerebral structure in no way implies similarity of mental characteristics. For them it is idle to classify mentality on the basis of brain structure, even if we knew the details of such structure, for the one is mental and the other physical. To this we can only answer that the hypothesis: "No psychosis without neurosis" is about as well established in psychology as is Avogadro's hypothesis in physics; in the nature of the case neither can ever be *proved*. If, however, we accept this very probable hypothesis, we can hardly doubt that for every thought there is a corresponding brain-process (physico-chemical process) and for every *tendency* to think in a particular way there is a corresponding cerebral structure. The only real question then remaining will be, is cerebral structure alike for all races at birth and changed afterwards by environment only, or do races like individuals innately differ in the make-up and arrangement of the nerve cells constituting the brain? To the writer the latter seems the more probable.

The differences in mental capacity depend on physiological differences which are at present unknown. That is, just those differences which would be most significant as the physiological bases for mental and moral differences are those that are not known. It is to be hoped that this will not always be so. To prove mental differences to be physiological would necessitate the discovery of specific differences in nerve structure corresponding to differences which are now alleged to be the result of environment. Since such physio-

logical knowledge has not yet been attained we must attack the problem from the psychological side.

Those who view man as forming but one race mentally point out that an anatomist can not with certainty tell if a given brain belonged to a white man or to a negro, much less if to an Englishman or to a Frenchman. This is true, but it is also true, that given a considerable number of brains from ordinary whites, and another collection of negro brains he will never have trouble in distinguishing which group is which. The same might be said of some of the more grossly physical distinctions between the races. Thus individual Japanese may be found who differ less from individual Americans than they do from certain individual Japanese, either mentally or physically, and individual Americans may be found having more resemblance to individual Japanese than to certain other Americans; yet mentally and physically there is always a marked distinction between a hundred Japanese and a hundred Americans that never leaves us in doubt as to which group is which.

This I believe would apply to babies as well as to adults, and to the mental productions of groups as well as to their physical persons. Thus, from a purely empirical point of view, the occasional appearance of persons of one race mentally or physically more like those of another race than their own is no bar to a successful classification. For example, the existence of phlegmatic Frenchmen and of excitable Englishmen does not invalidate the mental distinction between Frenchmen and Englishmen. We shall later see that these apparent exceptions are to be expected if we admit the soundness of mental race distinctions.

However few or many may have been the original number of races, it is, as has already been stated, quite certain that *all* modern races and peoples without exception are more or less *blends*. This statement is not contrary to the well-known Mendelian law of heredity. Superficially viewed this law may seem to deny the possibility of permanent "blends," since all unit characters must reappear as such in fixed mathematical proportions. But a strictly mathematical consideration of this law will also show that when the number of such unit characters is moderately large, the probability of having all of them (or a large majority) reappear in any one individual becomes vanishingly small. In fact the reappearance of a large number of such characters becomes mathematically less probable as the number of total characters increases.

Man is the most complex of animals, physically and mentally, and there is every reason to believe that the number of physical unit characters, properly so called, reaches into the thousands. The brain of man is complex beyond possibility of description; there are

literally hundreds of millions of neurones and numberless possibilities of connections more or less determined at birth. The number of unit mental characters can not, therefore, be even estimated with any degree of satisfaction. While theoretically the same, the case is practically very different from that of peas or mice. Now a consideration of the physics and mathematics of the case will show that when the number of determinants is infinite *the result of a cross in accordance with the Mendelian law becomes identical with a blend*. This is exactly analogous to the principle in physics that if the number of molecules of water, say, be infinite we may apply the laws of perfect fluids without error. Of course, the number of determinants is not infinite; nor is the number of water molecules, and hence the result of a cross between races is not a perfect *blend*. This may, at least in part, explain the great individual differences noted above between persons of the same race. In fact, the number of unit characters seems small enough in many cases for us to trace the workings of the Mendelian law and to allow for those cases commonly called "reversion of type"; and yet large enough to allow for an approximately homogeneous people to result after a comparatively few generations, say eight or ten. It is to be noted that such a people are *never* completely homogeneous, but tend to become more and more so with time if "castes" are not formed within the "blend."

By *mental-set* is meant the tendency to react in certain ways in response to a given situation. It is not exactly synonymous with ways of reacting, but rather means the ways one should react if it were not for extraneous influences. The German word *Weltanschauung* conveys something of the thought that is desired, and yet that is not it. We might say that the *Weltanschauung* of a person or people is chiefly determined by mental-set.

There are always three factors that go to make up mental-set, heredity, environment, and time. Of these the first two can vary independently of each other. Time has no meaning here except that heredity and environment may vary with respect to it. This may be expressed mathematically thus:

$$\text{MENTAL-SET} = f(\text{HEREDITY dt.} + f(\text{ENVIRONMENT dt.})$$

For the individual heredity is *fixed*, a constant that can not be changed, therefore, for this case:

$$\text{MENTAL-SET} = K + \text{ENVIRONMENT dt.}$$

For a people, however, heredity may change quite as rapidly as environment, in fact, usually more so, and it is in all cases a more powerful factor. Hence we see that heredity is more important for

the race than for the individual. LeBon expresses this by saying, "The only force strong enough to compete with heredity is heredity." Let us repeat, that for the individual mental-set is determined by the *fixed* quantity *heredity*, plus *environment* which varies with time; while for a *people* mental-set is determined by *heredity* and *environment*, both of which vary as time passes.

For a people heredity is immensely more important than environment for two reasons; *first*, its effects (on mental-set) are more rapid and marked, *second*, the changes produced by heredity are of necessity passed on to future generations, which may or may not be true of the effects of environment.

The fact that peoples differ in mental-set must not be taken to mean that one is necessarily better or worse, higher or lower, than the other. This is chiefly a question of viewpoint. I shall try to show that the mental set of the Frenchman and the German is radically different, but it does not follow that one is better or more intellectual than the other. The same is true of the American and the Japanese, or of the American white man and the American negro. That they differ mentally in the most important manner I believe we can show; which is the best or highest is largely a question of the point of view.

Thought can not be transferred; it can only be expressed. There is no known way by means of which I can communicate my thought to you, and when we speak of doing so it is purely figurative. What I can do, and all that can be done, is to give such *expression* to my thought as may cause similar thoughts in others. This is never perfectly accomplished, and in many cases the thought thus awakened is very different from the thought expressed. However, it is only through thought *expression* that we can know anything of the mental-set of individuals or races, and so we must look to thought expression for confirmation or contradiction of our thesis *that peoples and races have inherently different mental-sets*. In a broad sense all acts of men are expressions of thought, actual or potential, that is, of mental-set; but for our purpose only certain forms of expression are important:

These are: (1) Spoken language, (2) literature, (3) political and social institutions, (4) material civilization, (5) religion.

Beginning with spoken language, we must remember that thought, perhaps, is possible without words, though undoubtedly in all cases thought without words would be much narrowed and cramped.¹ The importance of the form of expression, here language of every-day life, spoken or written, in molding thought itself is immense; it is

¹ See James's "Principles of Psychology," Vol. I., page 226.

probably the most potent part of *environment*. The individual can hardly escape having his mental-set remodeled to fit the language through which he must express his thoughts. The race, however, having more time, can, and does, remodel the language to fit its mental-set (being also somewhat changed in the process, of course). Some examples may be cited: through what may be called political accident what is now France adopted the Latin language. After the fall of the Roman Empire the population of this country became very heterogeneous, but gradually formed something of what we may term a quasi-homogeneous people. The language imposed upon them by accident had now become a sort of "Low Latin" unsuitable for the expression of the thought of the new people now slowly forming by fusion of the heterogeneous elements. Unconsciously, little by little, inflections and constructions were adopted, till to-day French is Latin only in its word-roots and not in its structure or spirit. Something similar happened in Italy and Spain,—each people slowly fitting the language to the genius of the race, or its mental-set. In Germany where the race did not undergo any great change of blood, the language remains essentially unaltered in structure and spirit to this day. Remember that we are not talking of mere word-roots, but of structure, inflection, endings, manner of compounding, and so forth. These and not word-roots are the real spirit of a language.

In England prior to the Norman Conquest, we find a Teutonic tongue spoken, but with the introduction of considerable quantities of Norman blood this language was no longer suited to the mental-set of the people. As a new people gradually formed, so a new language formed, suited to them. In this case the old Saxon word-roots were largely retained, just as were the Latin word-roots in France, but, as in that case, the spirit of the older language was completely lost. Inflections were dropped, structures were changed, and in general, the language was made to conform to the people who spoke it. It is a matter of common observation that many obsolete Teutonic forms or ways of pronouncing words continue among ignorant persons in rural districts in England and America. It is customary to attribute this to ignorance and illiteracy, but is this correct? If this were the only factor would not the language of the illiterate always change more rapidly than that of the educated? May it not be that those persons being of humbler descent are more Teutonic, *i. e.*, less Norman, in blood, and that these forms suit them? The formation of a new language is not necessitated simply by the need of uniformity in expression; but the play of imagination, fancy, and instinctive needs of the people lead them deliberately, though

perhaps unconsciously, to change an accidentally imposed language to suit the genius of the race.

Noting again that two factors (other than time) help to make a people or race, is it not true that in spite of the unifying influence of universal education, newspapers, and travel, Americans are developing a new variation of English suited to the mental-set of the people? In spite of the fact that the American negro is subjected to every form of artificial coercion to force him to speak English just as the white man does, he does not do it. I am not referring to mere broken English; that is just as incorrect as Negro-English, but it is very different. Few of us realize how different Negro-English is from the white man's English. In truth it is a different medium of expression from English, in which the same words convey entirely different thoughts in entirely different ways. This in spite of the fact that forces such as suggestion, imitation, and education, tend to make the language the same for both races.

Man's permanent written expression of thought is a quite different thing from his spoken language. It is not representative of so large a proportion of a people, being rather an expression of the best than of the average thought. Yet it is no less distinctive and characteristic of a people; each writer has his own style, but, "*Le style est de l'homme même*," is no more true for an individual than for the race or people. Entirely aside from the mere words used there is a something common to all or nearly all German novels that marks them off from English or French of the same period, and this something does not disappear even if all are translated into a common tongue. Further, this national style, or style of a people, is not easily changed. Literary fashions come and go, but that of which we here speak remains. If, through accident, a foreign style gains temporary ascendancy in the literature of a people, their literature always declines. Even if the literature copied be very strong and noble, that of the imitating people rings untrue and is never great. This is because it does not allow expression to what has been called in this paper the mental-set of a people. It is on this account that no people have ever produced really worthy literature till they shook off the trammels of foreign or classic style. Not only must an individual writer be true to himself, that is, exhibit what Lewes calls "The principle of sincerity," if he would write literature worth while, but so must a people. One people can not adopt the style of another, but only imitate it, because the essence of style is that it shall express the mental set of the individual or people. "*Le style est de l'homme même*."

The mental set of a people also finds expression in political, social, and educational institutions. It is usual to explain the admitted

national character of most of these institutions on the ground of environment and practical requirements. The fact is that these material factors have weight only as they influence what we have called the mental-set of a people; and as has already been pointed out this is influenced as much (or more) by heredity as by environment. Imitation and artificial education have, of course, some influence, as, for example, the "republics" of Spanish America call themselves such in imitation of the United States of America, but this influence is always external and often transitory. If we look beneath the surface we see that no Spanish-speaking country is a republic in the sense that the United States is, nor can it be so. It is usual to explain that with time these or any other peoples, will become "fitted for self-government." This I believe to be a delusion and in contradiction to the observed facts and laws of physiological psychology. The gray matter making up the brain of, say, the Spanish American peoples is different from that of the Englishman. This does not necessarily imply inferiority, any more than black eyes imply inferiority as compared with blue eyes. *But it does imply difference.* This should always be remembered in discussing such matters; we Americans are prone to believe that ours is the only form of government that is highly intelligent, and therefore we are inclined to look upon the statement that a people are not suited for self-government as a slur upon their intellectual ability. This we try to salve by saying that with education and development they will become competent to govern themselves as we govern ourselves. Something of this kind is constantly being said of the Filipinos, Mexicans, Cubans, and others.

Let us see the facts without regard to the *names* by which institutions are called. Also let us disabuse our minds of the notion that a republic is the only good form of government. The governments of all the English-speaking countries are essentially republics of the same general type. This is true of England and her great colonies, as well as of America. France is a true republic in the sense that it is neither a military despotism nor an hereditary monarchy; yet the political institutions of France differ more from those of the United States than do those of England. As the French republic is the only great nation of French people, so we find no other people whose political institutions are so nearly allied to those of France as are the institutions of, say, Canada and the United States. Again we find a certain similarity in the political and social institutions of all dolichocephalic (Teutonic) peoples of Europe, whether called by the name of republic, empire, kingdom, or what not. The French Empire of the first or second Napoleon was an entirely different institution

from the present German Empire, even though having many factors in common.

In Spanish America, in spite of the name "republic" by which all of the states are called, we know that none is a republic in the sense in which the United States is. In Spanish America the most stable form of government seems to be the military dictatorship under the guise of a republic. Of course, all are not alike, for they differ in blood as well as in name; some are orderly strong governments, while others are weak and chaotic ones; but none is a republic. The naïve statement often seen in school books that a republic is a government deriving its authority from the consent of the people is meaningless, for in a very true sense all governments do this. That is, a nation can not be governed by a small number of men if the people as a whole actively and persistently oppose such a government. However, a people may very willingly *consent* to a government without themselves being any active or actual factor in that government. This is the true distinction, and not the mere name kingdom, empire, or republic. There are as many varieties of governments as there are peoples to be governed, each being an expression of the mental-set of a people.

If a so-called nation be in the formative state, racially speaking, that is, if, instead of being one homogeneous people, it is a mixture of several peoples yet unblended, no stable form of government is possible (excepting, of course, military rule from without). This seems to have been the case in Italy in the past, and in Spanish America, or at least parts of it, to-day; and probably will be the case in certain American states having a large foreign population in the future.

Other institutions, such as systems of education and social systems, might be similarly discussed. If the peculiar nature of institutions is to be explained by environment, one has to postulate something hereditary which was the dominant factor in forming the environment; for the environment that is of most importance here is not climate and geographical position, but customs and traditions.

Let us now briefly consider the material civilization of a people as a means of thought expression. It is true that material civilization is only the "hull" of thought, yet it is *par excellence* the "outward and visible form" of the inward thought. It is usual to assume that any given material civilization is founded upon another and older civilization. That is, that all civilization is a process of borrowing and improving, not of outright originating of anything. Through suggestion or imitation as well as through force of arms peoples do imitate or take on the material civilization of other peoples; but the real foundation of each material civilization is not another and older

civilization, but the minds of the people. The popular notion that so-called inferior civilizations are only stages of progress towards a civilization like our own is without foundation. Civilizations do progress, but not all towards a common goal. There is no reason to believe that the Hottentot would ever evolve railroads or skyscrapers, or anything serving the same purpose if he were allowed millions of years in which to evolve. Not only in such extreme cases is this true, but peoples on an intellectual par, in the sense that one can not be said to be *superior* to the other, will never evolve similar civilizations unless they have similar mentality, that is, are closely akin. Though the Romans and Etruscans were of about equal intellectual rank and had practically identical physical environment, and though the Romans evidently *tried* to copy the Etruscan architecture they never succeeded; there always remained a something that differentiated the work of the two peoples. Something similar might be said of Roman and Greek material civilization. Even to-day with our universal intercommunication there is a distinct and characteristic difference between the material civilizations of the important peoples, civilized or uncivilized, that extends throughout the whole shell of outward civilization. This, too, in spite of all kinds of artificial devices to smooth out just these inequalities. This could be illustrated equally well by the architecture of London and New York, of Mexico and Texas, of Peru and Australia; or by styles of railroad coaches in the various countries. This does not deny that material civilization, like language, is in part borrowed; but it does show that any given material civilization is not merely a step in a series of civilizations through which all races normally pass.

Of all forms of racial thought expression religion is at once the most intangible and most characteristic. Carlyle well says, "If you tell me what a man's true belief is, you tell me to a very great extent what the man is, and what kind of things he will do. Of a man or of a *nation* we inquire, therefore, first of all, what religion they had?"

Religion is peculiarly racial. What men do and say about business is perhaps largely determined by immediate surroundings. What men believe of the future and past, of life and death, are matters of "temperament" or racial-set. Of course, individuals may be found who diverge from the rule for one reason or another, but such are exceptions.

It is often stated that Christianity is a Semitic religion adopted by Non-Semitic peoples. This is argued to show that we obtained our religion from Asia, and that, therefore, in spreading Christianity in the East we are only returning borrowed capital. It may be true that historically speaking, Christianity is of Semitic and, therefore, of Asiatic origin; but psychologically speaking Christianity is

neither Semitic nor Asiatic. If we accept the records of the new Testament we can not help seeing that Christianity even in its infancy was not in accord with Jewish mental-set. And if this was true at the beginning, how much more so after it had been accepted and transformed by western minds? (The founder of Christianity was probably one of those great minds not in accord with his own people or times, that is, what the biologists call a *sport*.) One of the strongest proofs that Christianity is Non-Semitic is the fact that in spite of environment no Semitic people have ever been induced to accept it. The Semitic mind seems to require a strictly monotheistic religion, and this they find in Judaism or Mahometanism. On the contrary, the occidental peoples insist on a concrete, practical religion, and this they find in Christianity. The more typical of the oriental peoples, or at least the cultured among them, do not long for the concrete expression of religious belief that western peoples do. Logical philosophical speculation appeals to their mental-set—hence Buddhism and Brahmanism. It is noteworthy that after twenty centuries of effort, Christianity has scarcely made an impression in the east. The handful of native oriental Christians is absolutely negligible in comparison with the vast number who still give expression to their religious thoughts through adherence to some of the several eastern religions. On the other hand neither Mahometanism nor any other eastern religion has ever made headway among western peoples. Their total following is negligible. How are these facts to be explained? We sometimes say that eastern religions are incomprehensible to us and our religion to the orientals. This is true. For a religion to be genuine it must be the most subtle expression of the inward mentality; and the mentalities of eastern and of western peoples are widely different.

In fact we may venture to say that if ever the east becomes Christian it will be with an orientalized form of Christianity, being like our Christianity in name only. A good illustration of the point was given in the proposal made in Japan some time back, to *create* a new religion by blending Buddhism, Shinto, and Christianity to suit the Japanese people. Of course such a scheme is not likely to succeed in this way—time must be given for a people naturally and unconsciously to blend these or other beliefs in such proportions and ways as may suit their mental-set. This can not be done artificially. It may be remarked that the Japanese are not a truly oriental people in the sense that the Chinese are.

Though all occidental peoples unquestionably resemble each other more than they do any oriental people, yet they are divided into more or less well-marked groups. In order not to extend this discussion to too great a length we must confine ourselves to the larger divi-

sions and ignore all minor ones, though these would equally well illustrate our point. Broadly speaking, the religions of Europe and America may be divided into three classes on psychological grounds: (1) Religions having a tangible head, emphasizing faith; (2) individualistic and intellectual religions, emphasizing freedom of belief; (3) emotional religions, emphasizing personal experience.

While all Christian religions possess to some extent all of these qualities, the emphasis is quite different. The Roman and Greek churches are the important examples of the first class given above; Lutherans, Presbyterians, and Puritans may serve as examples of the second class; Baptists and Methodists are usually representatives of the third class. Of course all overlap.

If we make a list of the countries in which the decided majority of the people profess a religion of class one, that is, Roman and Greek Catholic countries, we will find them all peopled by Celtic or Slavonic races. Such a list of countries for the second class of religions will include Teutonic peoples only (using that term in a broad historic sense corresponding to physical formation of the head and face), and the more Teutonic in blood the more *protestant* in the full, non-emotional sense is their religion. Ireland is an example of a brachycephalic people who through political accident speak a modified Teutonic language and who are united with a Protestant people, yet they are as Catholic as the people of Spain or Italy with whom they have more racial kinship. The same relation holds for the Scotch Highlanders in so far as their blood remains predominantly Celtic. When for any reason a people have adopted a religion foreign to their mental-set we find that they adapt it to suit their own mentality, just as they do language or material civilization. For example, the Welsh, though Protestant, have an emotional form of Protestantism which, psychologically speaking, is more akin to Romanism than to Lutheranism. Our southern negroes furnish another example of fitting a religion to a race. It is a fact perfectly well known to all who are familiar with negro religions, that these religions, though called by the same names, have scarcely any points in common with the religions of the whites.

This one mode of thought expression is so varied and important that whole books could be written on race and religion; but we have only attempted to touch upon some of the more important and obvious relations.

The effect of crossing or interbreeding two dissimilar races is very different from the point of view of the *individuals* produced, and that of the *race* or people produced. An individual resulting from a cross of dissimilar races may be mentally superior (or inferior) to either. When a large number of such persons exist in a country

social, political, religious, and all other institutions must be in a state of unstable equilibrium, for none of the existing institutions, which were fitted to the mental-set of the parent races, can fit that of the new and as yet heterogeneous race. For such blending of races as is necessary to produce a homogeneous people several generations at least are required; and then perhaps several more generations will be needed to enable the "members" of the race to find themselves, so to speak, that is, to adapt to their own mentality the customs and institutions that they have inherited.

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REVIEWS AND ABSTRACTS OF LITERATURE

Essays on Truth and Reality. F. H. BRADLEY. Oxford: Clarendon Press. 1914. Pp. xvi + 480.

Mr. Bradley has here collected the principal articles that appeared from his pen during the years 1908-11, with a few others of earlier date and some fresh additions. These last include a note on pragmatism, a criticism of James's radical empiricism, a criticism of Mr. Russell's theory of relations, and several short constructive papers: "What is the real Julius Caesar?," "On God and the Absolute," and "On my Real World."

As Mr. Bradley himself repeatedly indicates, the volume contains little by way of development or even of amplification of his already published views. It consists of criticisms and restatements. Those who have studied "Appearance and Reality" have little to learn from it with regard to Mr. Bradley's philosophy. The interest of this new work is that of an historical document. Mr. Bradley is, with one possible exception, the most distinguished representative of absolute idealism in England; and his philosophical activity covers the whole period of the dominance of the neo-Hegelian school. These essays mark another "milestone." They show us the reaction of a leader of the eighties and nineties upon the newer thought-impulses of to-day. This applies not only to the critical papers, but also to the constructive. These latter are fresh attempts to make plain the old and well-tried doctrines to a generation of would-be innovators.

Of the critical papers the most successful appear to be those directed against James, convicting him of vagueness and inconsistency, as well as of ignorance of various neo-Hegelian positions. Of positive appreciation there is none. Professor Dewey is gingerly handled. Mr. Bradley has evidently a deep respect for him, perhaps as a representative of the Hegelian tradition; and his criticisms usually shade off into a confession of possible misunderstanding. Least successful, I should say, is the new essay in criticism of Mr. Bertrand Russell. This is in part directed against the contention of Mr. Russell that relations are real apart from all terms. Mr. Bradley appeals to an "ideal experiment," in which he

removes the terms from different relations; and declares that when the terms are wholly removed the relation has in every case disappeared. A fair parallel would be an experimental refutation of Platonism that consisted in showing that pure "ideas" can not be represented in imagination. Elsewhere in the same essay Mr. Bradley undertakes to deny that there are or can be multiple relations. "Between," he says, "is no relation at all"; it is "a feature which appears in a relational arrangement"; for which the equivalent phrase, "arrangement involving such and such relations," is also used (pp. 306-7). Now I venture to say that Mr. Bradley would find it embarrassing to try to point out the several relations which to his mind make up the arrangement of "between." For the statement that *B* is between *A* and *C* can not be resolved into any number of statements with regard to *A* and *B*, *B* and *C*, and *A* and *C*.

Turning to the constructive papers, we find the reading of them much facilitated by the few pages of "Concluding Remarks," in which Mr. Bradley gives a summary account of his view as to ultimate reality. The "very soul" of this view, he says, is "its insistence and emphasis on an all-pervasive relativism"; and he opposes it to the false absolutism, which "takes some distinction within the whole and asserts it as being real by itself and unconditionally; and then from this misconceived ground . . . goes on to deny or to belittle other complementary aspects of the same whole." And he makes clear that it is this general view that has inspired all that he has written upon the various special topics treated.

The principle of universal relativism, used as an engine of criticism, is most formidable; and Mr. Bradley employs it here, as in his earlier works, with unrivaled skill. But, so far as any positive aid in the solution of any special philosophical problems is concerned, it leaves one pretty close to where it finds one. All that is denied as substance is reasserted as mode. "Everything," as Mr. Bradley says, "is justified as being real in its own sphere and degree." But the sphere and degree remain to be determined; and here Mr. Bradley has not much assistance to offer us.

For it is amazing how little knowledge of nature or society enters into this philosophy; except, indeed, indirectly, for it operates by means of conceptions which the German idealists won from the science of their time. Mr. Bradley disclaims any knowledge of mathematics; and of all his reading of science and history and general literature, and of all his observations upon men and manners, almost nothing appears in these pages. He is—with all due respect be it said—a typical scholastic. It is for this reason that, while he is a great man in his school, and has had a powerful influence upon thinkers who stand upon the same general platform, outside the school his teachings have left a very slight impression.

Mr. Bradley's Hegelianism differs from that of Hegel first and foremost in its relatively unsystematic character; and this rests upon the merely negative use of the principle of the dialectic. Nothing that can not without contradiction be conceived as self-subsistent is real; and nothing to which this test is applied survives it. But there is generally no effective synthesis—only the postulate that *somehow* a synthesis must be provided. Mr. Bradley's philosophy is, accordingly, far less ambitious

than Hegel's, and is wholly free from the tendency to charlatanism into which Hegel's ambitious programme sometimes betrayed him. But it is at the same time far less instructive.

Along with this renunciation of system goes a certain empiricistic strain. I have already referred to Mr. Bradley's use of what he calls "ideal experiments." These play a great part in his thinking. Estimates of the value of this method must differ greatly. To me it appears open to deep suspicion. A similar procedure on the part of Herbert Spencer, when he attested the "inconceivability of the opposite" of various self-evident truths, is universally condemned as a mere appeal to prejudice; and I can not see that Mr. Bradley's ideal experiments are so hedged about by experimental safeguards as to be of a distinctly higher value.

Another *motif* that may be regarded as empiricistic (or, perhaps, rather subjectivistic) is the basing of epistemology upon a specific theoretical impulse, which is treated simply as a given characteristic of human nature, correlative with various other impulses such as the esthetic, religious, and moral. This subjective treatment of truth is combined by Mr. Bradley with an objective treatment, more in keeping (as I should suppose) with the spirit of absolute idealism; but, so far as I can see, no organic connection between the two treatments is made out.

Similarly, as regards the real, as distinguished from the imaginary world, Mr. Bradley declares that it "rests on a quality, on a felt content, on that of which I am aware when I say 'this myself which is now.' I experience this content when I feel the difference between the mere idea and the actuality of my present self." In the same connection this is called a "felt unique quality"—Hume himself is not more ready to assume unique feelings—"a content not explicit, but positive, not brought before me, but felt." And again this view is conjoined with an objective view. The hard and fast distinction, based on the felt unique quality, will not stand, we are told. It must be replaced by a difference of degree, based on the relative orderliness and systematic character of the various worlds offering themselves to our attention (pp. 47 ff.).

As to the value of Mr. Bradley's philosophy as a whole, it remains to the future to speak. But, so far as I can see, this value has lain not nearly so much in the specific theories advanced as in the incessant intellectual activity of the philosopher. In the preface to this volume he very gracefully remarks: "It is a satisfaction to me, when approaching the end of my own career, to note (whatever school or tendency may from time to time be in fashion) the increasing devotion amongst us to metaphysical inquiry." Of such devotion Mr. Bradley has himself given a noble example, which has no doubt had its part in bringing about the general revival. To be sure he has never reached the larger public; and he has scarcely touched even the philosophical public in France and Germany. But, especially since the publication of "Appearance and Reality," every thinker in England and America has had to take serious account of him; and this has meant hard study of a hard-thinking man. I do not know where one could find less entertainment. No art is employed to fix a wandering attention. The reading of Mr. Bradley's works has required

and fostered a spirit like that which went into the writing of them: a single-minded devotion to philosophy.

Mr. Bradley half promises to collect some of his other writings which have too long lain scattered through the reviews, and suggests that he may even republish his early volumes on logic and ethics. Let us hope that strength will not be lacking to him to finish this task.

THEODORE DE LAGUNA.

BRYN MAWR COLLEGE.

Moral Training in the School and Home: A Manual for Teachers and Parents. E. HERSHEY SNEATH and GEORGE HODGES. New York: The Macmillan Company. 1913. Pp. 221.

The Way to the Heart of the Pupil. DR. HERMAN WEIMER. Authorized translation by J. REMSEN BISHOP and ADOLPH NIEDERPRUEM. New York: The Macmillan Company. 1913. Pp. xii + 178.

The two books demand separate treatment. The first-named is the work of two American professors of divinity, written to meet the posited need for "careful, systematic, graded, moral training" in the American public elementary school. The book is thoroughly inane. The contents consist of (i) an obvious list of virtues and vices, (ii) commonplace commentary thereon, and (iii) tables of suggested stories classified according to the several virtues and vices of the several school grades. The stories constitute the primary motive of the book, for we are told explicitly that "the best way" to build character is "by systematically placing before the student moral situations as embodied in story." No one questions a crying need for better morals, nor that character-building lies centrally within the domain of education. But when we are asked to rely principally upon stories as the specific educational agency that shall effect better moral characters, we hesitate. We are forced to wonder whether the advocates of such a nostrum quite appreciate the inherent position that morals have in life. Nor is there any firmer grasp of the principles of habit formation: "Moral situations embodied in story . . . dealing with the virtues and vices peculiar to each period of the child's unfolding result in wholesome moral reactions which, through frequent repetition, lead the pupil to develop habits of will and forms of conduct that are morally worthy." What can the authors be thinking? Has James lived in vain? Is conduct merely the end of education and not also its very process and content? Are actual life and the study of psychology still strangers to each other? We need say no more. A vital discussion of the actual problem of moral education would be welcomed; but there is no place for a book based essentially on such an inadequate and discarded psychology.

Except as source material for the study of comparative education, the second book—as a translation—has small excuse for being. Its lesson for America is too remote. The chief interest which it has for us lies in the light it reflects upon German school practise. The appeal to Pestalozzi's love of children, the protest against corporal punishment, against brow-

beating, against refusal to answer pupil's questions—all this carries us back to the mid-nineteenth century, and shows us how far American schools under the influence of democracy have departed from the once universal repression of childhood. When Dr. Weimer regrets that "kindness is so rare a plant in our schools," that too often "the child is absorbed in silent, half-conscious hatred of everything that is called school," we see in these effects of "Prussian preciseness"—to use Dr. Weimer's phrase—not the much-praised efficiency of German education, but a general social theory and attitude which consistently refuses self-expression to German school-boys, and to their elders a responsible ministry in the Reichstag. America has much to regret as to the efficiency of her schools, but she has left behind the rule of the rod and the systematic suppression of childhood. Her undertaking is difficult, but it is the problem of democracy. We wish Dr. Weimer Godspeed in his crusade for happier schoolrooms, but many of us fear that another reform must first be effected.

WILLIAM HEARD KILPATRICK.

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JOURNALS AND NEW BOOKS

JOURNAL OF ABNORMAL PSYCHOLOGY. February-March, 1915. *Freud and His School: New Paths of Psychology* (pp. 369-384): A. W. VAN RENTERGHEM. — The first of two or more articles on the work of Freud and his school. The attitude of societies and the public when Freud first published his works on psychoanalysis is briefly sketched. The difficulty of giving "a concise, clear, and understanding idea of Freud's teachings" is due to the various subdivisions being so involved. The conception of the conditions of the patients cited might be called "the sexual theory of the neurosis." *On Psychological Understanding* (pp. 385-399): DR. C. G. JUNG. — One kind of understanding is *retrospective*, another is not analytic or reductive, but *synthetic* or *constructive*. "The reductive method has the great advantage of being much simpler. It reduces everything to generally known principles of a simple nature. The constructive method has to build up towards an unknown goal. The elements with which it works are the complicated components of the actual mind. This kind of work forces the explorer to take all those powers, which are at work in a human mind, into his account. The reductive method tries to replace the religious and philosophical needs of mankind by a more elementary viewpoint, following the principle of the 'nothing but,' as James nicely says; but the constructive method acknowledges them 'tel quel' and considers them as the indispensable elements of its work." *Professor Janet on Psychoanalysis: A Rejoinder* (pp. 400-410): ERNEST JONES. — Professor Janet's criticism of psychoanalysis, read before the International Congress in London, contained a number of passages of a nature that laid him open to a charge of unfairness. His answer was an

apology of his ignorance of German and consequent reliance on French and American abstracts of Freud's articles. "Even if his plea of ignorance at the time of writing the paper afforded the real explanation of these, and I shall presently show that it could not have done so, it is evident that after the date of the Congress this could no longer be regarded as a valid excuse. . . . Professor Janet has, in my opinion, allowed himself to be betrayed into the grossest lack of objectivity." *Freudian Psychology and Psychical Research: A Rejoinder* (pp. 411-416): HERWARD CARRINGTON. - Ten statements made by Dr. Leonard T. Troland in the *Journal of Abnormal Psychology* are attacked as an "attempt to account for the supernormal phenomena of psychical research by means of Freudian analysis is of course, sheer nonsense." *Stammering as a Psychoneurosis* (pp. 417-429): ISADOR H. CORIAT. - The cases investigated and treated by the psychoanalytic method have led to the belief that the disturbing mechanism is mental and not physical. "The proper treatment of stammering, therefore, is purely psychological, for it is useless to teach the sufferer how to speak, because under certain circumstances the stammerer experiences no difficulty in speaking." *Discussion. Reviews: Stammering and Cognate Defects of Speech*: C. S. BLUEMEL. *What Men Live By: Work, Play, Love, and Worship*: RICHARD C. CABOT. *A Handbook of Psychology and Mental Diseases*: C. B. BURR. *Books Received*.

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NOTES AND NEWS

At a meeting of the Aristotelian Society on May 3, Professor Arthur Robinson read a paper on "The Philosophy of Maine de Biran: the Way out of Sensationalism." "De Biran was a life-guardsmen of Louis XVI., banished to solitude by the Revolution, who devoted his life to philosophy. Although the period in which he lived witnessed the beginning and development of the great philosophical movement in Europe inaugurated by Kant's 'Critique of Pure Reason,' De Biran began his work probably not knowing even the name of Kant, and regarding Condillac and the ideologists as the whole of philosophy. The attention which has recently been drawn to his work is due not to a purely antiquarian interest, but to the value and suggestiveness of his writings. It has been claimed that there is a close kinship between the philosophy of De Biran and that of Bergson; it is no doubt a kinship of the spirit rather than of the letter, but there are some who see in his doctrines the beginning of a philosophical direction which has influenced first Ravaisson and finally Bergson. In the only work published during his lifetime, his "Mémoire sur l'Habitude," he comes before us as a sincere and subtle thinker, a psychologist by constitution, an ideologist and disciple of Condillac, gradually reasoning himself out of Sensationalism under the guidance of a clue found in the authorities of that school, but never pursued by them. Condillac's psychology was an attempt to reduce all the contents of consciousness, and also its activity, to transformations of passive sensations. Memory is a weakened attention, a dominant sensation, and to have two sensations at the same time is to compare and judge. So, in his famous statue, the senses are awakened one after the other, and then the intellectual faculties supervene upon—or rather are—the transformed sensations. Some of Condillac's followers have called attention to the part which mobility plays in experience, but it was De Biran who followed out the conception until it led him to conclusions inconsistent with the whole theory of Sensationalism. Some of his theories were in a curious way a forecast of modern doctrines, as, for instance, that we labor under an illusion with regard to the reality actually within us, born of our tendency to objectify and represent what is incapable of being objectified and represented, and the task of philosophy is to overcome and reverse this tendency. '*Il faut, pour ainsi dire, désobjectiver la conscience et l'apercevoir dans son intimité.*' 'Who knows,' he says in another connection, 'all that is possible to concentrated reflection, and whether there may not be a new world within us to be discovered one day by some metaphysical Columbus?'"—*Athenæum*.

"THE LAYMAN REVATO," by Edward P. Buffet, which was reviewed in these columns on May 27, is now handled commercially, not by the publisher whose imprint it bears, but by Messrs. G. E. Stechert and Company, 151 West 25th Street, New York City, as selling agents for the author. Mr. Buffet's address is 804 Bergen Avenue, Jersey City, New Jersey.

DR. ERNST MEUMANN, professor of psychology at Hamburg, known for his contributions to experimental and educational psychology, has died at the age of fifty-three years.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

RESPONSE AND COGNITION

I. THE SPECIFIC-RESPONSE RELATION

THE novelty exhibited by things at the moment of their synthesis into an organized whole has been frequently commented on. Such moments may seem to be "critical," as when two gases condense into a liquid and the phenomena exhibited by gases are replaced by those characteristic of fluids; or there may be less appearance of discontinuity, as when a solid is slowly dissolved in a liquid and the latter as slowly acquires new properties. In either case, separate entities have been organized into a new whole, and their former action as independent parts is now combined in the action of the whole. And while it is obvious that the whole is nothing more than the parts as thus organized, and that the properties of the whole are nothing more than the properties of the parts now acting in cooperation, it is nevertheless true that the whole now does things which the isolated parts never did or could do. New phenomena, new laws and functions have been developed.

Most of us believe that the appearance of life was such a critical moment in the evolution of the universe: that life came into existence when some, perhaps a specific, sort of chemical process was set up under such conditions as maintained it around a general point of equilibrium. The result was undoubtedly novel; and more novelties were to come. Living substance was to acquire a protective envelope, to become irritable, conductive and contractile, to develop specific irritability to many stimuli, to get the power of locomotion, and much else. Now in the course of this further evolution, there is a critical point which is worthy of notice. It is the point where the irritable, contractile, and conductive tissues develop systematic relations which enable them to function as an integral whole. Here, too, novelty ensues.

How "critical" this point is, how sudden and well-defined, or, on the other hand, how gradual, can not as yet be told. The integrative process in the nervous system, as Sherrington so well calls it, has not, even yet, been observed in sufficient detail. But this is of secondary importance; and the result of the process we do know definitely.

This is, that the phenomena evinced by the integrated organism are no longer merely the excitation of nerve or the twitching of muscle, nor yet the play merely of reflexes touched off by stimuli. These are all present and essential to the phenomena in question, but they are merely components now, for they have been integrated. And this integration of reflex-ares, with all that they involve, into a state of systematic interdependence has produced something that is not merely reflex action. The biological sciences have long recognized this new and further thing, and called it "behavior."

Of recent years, many of the workers in animal psychology have been coming to call this the science of behavior, and have been dwelling less and less on the subject of animal "consciousness." They do not doubt, any of them, that at least the higher animals are "conscious"; but they find that nothing but the behavior of animals is susceptible of scientific observation. Furthermore, several students in the human field have come to the same conclusion—that not the "consciousness," but the behavior of one's fellow men, and that alone, is open to investigation. Several volumes have been put forth which even undertake to construe human psychology entirely in terms of behavior. It is obvious that this is an unstable condition in which the science now finds itself. We can not continue thus, each man proclaiming his own unquestionable gift of "consciousness," but denying that either his fellow men or the animals evince the slightest indication of such a faculty. Now I believe that a somewhat closer definition of "behavior" will show it to involve a hitherto unnoticed feature of novelty, which will throw light on this matter.

Precisely how does this new thing, "behavior," differ, after all, from mere reflex action? Can not each least quiver of each least muscle-fiber be wholly explained as a result of a stimulus impinging on some sense-organ, and setting up an impulse which travels along definite nerves with definite connections, and comes out finally at a definite muscle having a certain tonus, etc., all of which is merely reflex action? Yes, exactly; *each least* component can be so explained, for that is just what, and all that, it is. But it is the coordinated totality of these least components which *can not* be described in such terms, nor indeed in terms resembling these. For such neural and reflex terms fail to seize that integration factor which has now transformed reflex action into something else, *i. e.*, behavior. We require, then, an exact definition of behavior.

But before proceeding to this definition we shall probably find useful an illustration from another science, which was once in the same unstable state of transition as psychology is now. In physics a theory of causation once prevailed, which tried to describe causal process in terms of successive "states," the "state" of a body at one

moment being the *cause* of its "state" and position at the next. Thus the course of a falling body was described as a series of states (*a, b, c, d, etc.*), each one of which was the effect of the state preceding, and cause of the one next following. This may be designated as the "bead theory" of causation. Inasmuch, however, as nothing could be observed about one of these "states" which would show why the next "state" must necessarily follow, or, in other words, since the closest inspection of "states" gave no clue toward explaining the course or even the continuance of the process, an unobservable impetus (*vis viva, Anstoss, "force"*) was postulated. This hidden impetus was said to be the ultimate secret of physical causation. But, alas, a secret! For it remained, just as the "consciousness" of one's fellow man remains to-day in psychology,¹ utterly refractory to further investigation. Now "myth" is the accepted term to apply to an entity which is believed in, but which eludes empirical inquiry. This mythical *vis viva* has now, in good part, owing to the efforts of Kirchoff and Hertz, been rejected, and, what is more important, with it has gone the bead theory itself. It is not the "previous state" of the falling body which causes it to fall, but the earth's mass. No laws, in which alone explanation resides, for falling bodies or for any other process could, on the terms of the bead theory, be extracted from the phenomena. But laws were easily found for physical processes, if the observer persuaded himself to make the simple inquiry, *What are the objects doing?*² Now the falling body is not merely moving downwards past the successive divisions of a meter-stick which I have placed beside it (which is all that the bead theory would have us consider), nor is it essentially moving toward the floor which, since a floor happens to be there, it will presently strike. The body is *essentially* moving toward the center of the earth, and these other objects could be removed without altering the influence of gravity. In short, the fall of a body is adequately described as a function of its mass, of the earth's mass, and of the distance between the centers of the two. And the *function is constant*, is that which in change remains unchanged (in the case cited, it is a constant acceleration). The physical sciences, of course, have now explicitly adopted this function theory of causation.³ Every physical law is in the last analysis the statement of a constant function between one process or

¹ The transition here in question has been admirably stated, from a slightly different point of view by W. P. Montague, in "The Relational Theory of Consciousness and its Realistic Implications"; in this JOURNAL, Vol. II., pages 309-316.

² That the answer to this question explains also *why* they do it, is an important point, but one with which we are not now concerned.

³ Cf. E. Cassirer, "Substanzbegriff und Funktionsbegriff," Berlin, 1910. The sciences have implicitly used this method from the very beginning.

thing and some other process or thing. This abandonment of the bead theory in favor of the function theory requires, at the first, some breadth and some bravery of vision.

Now psychology is at the present moment addicted to the bead theory, and I believe that this is responsible for the dispute about "consciousness" *versus* behavior. Our disinclination to follow the physical sciences, to adopt the functional view in place of the bead theory, has hindered us from defining accurately what behavior is, and this has prevented us from recognizing a remarkable novelty which is involved in behavior, and which is the result of reflex action becoming organized.

We are prone, even the "behaviorists" among us, to think of behavior as somehow consisting of reflex activities. Quite true so far as it goes. So, too, coral reefs in the last analysis consist of positive and negative ions, but the biologist, geographer, or sea-captain would miss his point if he conceived them in any such terms. Yet we are doing the very same thing when we conceive the behavior of a man or animal in the unintegrated terms of neural process; which means, agreeably to the bead theory, the impinging of stimulus on sense-organ, the propagation of ionization waves along a fiber, their spread among various other fibers, their combining with other similar waves, and eventually causing the lowered or heightened tonus of muscle. All this is happening. But our account has overlooked the most essential thing of all—the *organization* of these processes.

If now we pitch the misleading bead theory straight overboard, and put our microscope back into its case, we shall be free to look at our behaving organism (man, animal, or plant), and to propound the only pertinent, scientific question—*What is this organism doing?* All agree that empirical study will elicit the answer to this question, and in the end the complete answer.

What, then, *is* it doing? Well, the plant is being hit by the sun's rays and is turning its leaves until they all lie exactly at right-angles to the direction of these rays: the stentor, having swum into a region of CO₂, is backing off, turning on its axis, and striking out in a new direction: the hen has got a retinal image of a hawk and she is clucking to her brood—shoot the hawk or remove the brood and she stops clucking, for she is reacting to neither one nor the other, but to a situation in which both are involved: the man is walking past my window; no, I am wrong, it is not past my window that he is walking; it is *to* the theater; or am I wrong again? Perhaps the man is a journalist, and not the theater, nor yet the play, but the "society write-up" it is to which the creature's movements are adjusted; further investigation is needed. This last instance is important, for the man "walking past my window" is generally doing so in no more pertinent a sense

than does the dead-leaf fall to the ground "past my window." Both are *doing* something else. Herein the folly of the bead theory becomes clear. This theory says that in order to understand the man's actions, as he walks by, we must consider his successive "states," for each one is the cause of each succeeding one. And if we follow the theory faithfully, it leads us back to the successive "states" of each component process, and ever back, till we arrive at the flow of ions in neuro-muscular tissue; in which disintegrating process the *man* with which we started is completely dissolved and lost.⁴ But now the functional view, moving in precisely the opposite direction, admonishes us to keep the man whole (if it is *behavior* that we are studying) and to study his movements until we have discovered *exactly what* he is doing, that is, until we have found that object, situation, process (or perhaps merely that relation) of which his behavior is a *constant function*. The analysis of this behavior, as thus exactly described, will come in later; but it in turn will be carried on in the same spirit—*i. e.*, of discovering always and solely *functions*. The movements of a plant, animal, or man are always a constant function of something, or a combination of such constant functions, and these—the movements, the functions, and the things of which the movements are a function—are always open to empirical investigation.

But now, it will be said, the biologists and the behaviorists are doing just this thing—discovering constant functions. They are describing the motions of plant leaves as a function of the direction of the sun's rays, and are doing the same for all the aspects of animal behavior as well. They have done this for a long time. And there is nothing "novel" in behavior as so described. To which I answer, firstly, that the behaviorists are indeed doing this, are doing just the right thing; but they do not realize the significance of that which they are doing. And this is because, secondly, they are not aware of the remarkable novelty which behavior, considered just as they are considering it, does in fact involve.

An exact definition of behavior will reveal this. Let us go about this definition. *Behavior is, firstly, a process of release*. The energy with which plants and animals move ("behave") is not derived from the stimulus, but is physiologically stored energy previously accumulated by processes of assimilation. The stimulus simply touches off this energy.

⁴ Philosophers have justly denounced this view, but in their reaction have hit on another, the teleological, which is unfortunately no truer to the facts, as I shall show further on. It is singular that philosophy at large, having seen the inadequacy of the bead theory, should have retained it; retained it, that is, for the "mechanical realm"; and this even after the mechanists had abandoned it.

Secondly, *behavior is not a function of the immediate stimulus.* There are cases, it is true, in which behavior is a function, though even here not a very simple function, of the stimulus. These are cases of behavior in its lower stages of development, where it is just emerging from the direct reflex process. They demonstrate the *continuity* of evolution at this point—a most important fact. But as behavior evolves, any correlation between it and the stimuli which are immediately affecting the organism becomes increasingly remote, so that even in fairly simple cases it can no longer be demonstrated. This fact, that the immediate stimulus recedes in importance, is the interesting point about the integration of reflexes. It has been widely recognized in psychology; perhaps most conspicuously by Spencer, who generally refers to it under the term “higher correspondence.” One will see in what relatively early stages of integration the immediate stimulus is thus lost sight of, if one considers how even the “retinal image” (to say nothing of the distant object which casts that image) is not, in any exact sense, the actual physiological stimulus; yet the organism “behaves” with regard only to the distant object. Since, then, behavior is not essentially a function of immediate stimulus, this latter can not enter into a definition of behavior.

But on the other hand, thirdly, *behavior remains a function of some object, process, or aspect of the objective environment* (including, in rare cases, the internal vegetative organs; which are still, however, “objective”). And this is our crucial point. Not quite adequately realized by the behaviorists, it is *terra totaliter incognita* to the subjectivists. And the proposition negates their whole gospel, including especially the notion of “consciousness.” I shall revert to this. Here we need only note that the behaving organism, whether plant, fellow man, or one’s own self, is always doing something, and the fairly *accurate description* of this activity will invariably reveal a law (or laws) whereby this activity is shown to be a constant function of some aspect of the objective world. One has here the same task as in any other strictly physical science. In both cases some accuracy is needed, and in both alike this accuracy can generally be advanced by more exhaustive observation. Thus it is inaccurate to say that a river flows toward the sea, since it meanders about in all directions; while it is fairly accurate to describe it as always flowing toward the next lower level of the earth’s surface, and this is a law describing flow as a constant function of the earth’s crust and the position of the earth’s center. The test is, of course, whether this or that could be removed *without changing* the river’s course: the “sea” could be removed, the “next lower level” could not. So in behavior, the flock of birds is not, with any accuracy, flying over the green field; it is, more essentially, flying southwards; but even

this is only a rough approximation to a law of migration. In all events the flock of birds is doing something, and the sole question which we need ever ask is, "What is it doing?" I have elsewhere explained how the same question and it alone is applicable to *one's own* behavior (voluntary or other).⁵

Now I believe that the foregoing three propositions yield a definition of behavior. It would run: *Behavior is any process of release which is a function of factors external to the mechanism released.*

But why "any" process when it is well known that behavior is a phenomenon found in none but living organisms? Precisely because behavior as thus defined is in fact a striking novelty, which does not, so far as I am able to ascertain, occur anywhere in the evolutionary series prior to the appearance of organized response. This point is somewhat later, too, than that at which life appears. In the ordinary inorganic case of released energy, the process, once touched off, proceeds solely according to factors internal to the mechanism released. When a match is touched to gunpowder the explosion is a function of nothing but the amount, quality, arrangement, etc., of the powder. The beginning of the process is a function of the moment of firing; but that is all. When, on the other hand, an organism with integrated nervous system is stimulated, the organism by virtue of internal energy released, proceeds to do something, of which the strict scientific description can only be that it is a constant function of some feature of the environment; and this latter is by no means necessarily the stimulus itself. The organism responds specifically to something outside,⁶ just as the falling body moves specifically toward the earth's center. This fact offers no opening for the introduction here of "subjective" categories: the investigator continues to ask, merely, What is the organism doing? The answer will be in strictly objective terms. It can not be said that the ordinary release process is a function of the temperature, moisture, etc., of the surrounding air, for it is in fact a function of these only in so far as they penetrate and become internal to the released mechanism. In behavior, on the other hand, there is a genuine "objective reference" to the environment which is not found, so far as I can learn, in the inorganic, or the organic world prior to integrated reflex response. This is the novelty which characterizes behavior. And here, if anywhere, evolution turned a corner.

In the second place, it may be noted that the definition neither

⁵ Cf. My "Concept of Consciousness." Geo. Allen and Macmillan, 1914. Pages 287 *et seq.*

⁶ The above is that stricter definition of "specific response" which I have previously said ("The New Realism," 1912, page 355) that I hoped some day to be able to give.

excludes nor yet makes essential the case of the immediate stimulus being the object of which the behavior is a constant function. This often happens, and is characteristic of the simpler instances where behavior is only beginning to be differentiated from plain reflex action. Evolution is of course not discontinuous, and the development from reflex action to highly organized behavior is one in which the correlation between stimulus and organism becomes less and less direct, while that between the organism and the object of response becomes more and more prominent. Plain reflex action is a function of the stimulus and of factors internal to the neuro-muscular arc. Then presently one finds reflex movements that are due, as one must (with Sherrington) agree, to "so-to-say stored stimuli"; since the immediate stimulus does not account for the reflex movement. It is here that behavior begins, and precisely here that the "bead theory" would lead us astray. The response in question is a response to a past event, it is describable only in terms of (as a function of) this past event; while the bead theory would let us look only to the present condition of neuro-muscular tissue, the "so-to-say stored stimuli." These are of course an integral part of the causal process, but not the more enlightening part. Just as the measurements of the velocity of a body at successive moments are an integral part of its fall to earth, while if we considered *nothing* but these, we should never arrive at the true law of fall—a constant acceleration towards the earth's center. Or it is again as if, when one had photographed the spectrum of a newly discovered earth, one were misled by the bead theory into considering the result as "merely light and dark parallel lines on a gelatine negative." It is this, indeed, but it is also an interesting combination of metallic spectra. Or, again, the camera photographs a motor-car race, and the sensitive plate is affected a millionth of a second later than that in which the phase photographed occurred. By the time the print is obtained the race is long since over. The bead theory then says: This is only a black-and-white mottled slip of paper, it is no function of the racing motors. It is in just this way that in studying behavior we think that the only scientific view of it must be in terms of ionized nerve and twitching muscle. Is it any wonder, then, that having ignored the *objective functional reference of behavior*, we are led into the superstition of "ideas" in the "sensorium" which have an "objective reference" to the environment?

If now the behaviorist will bear in mind that he is scientifically justified in asking broadly, What is the organism doing?, he will discover that it is set to act as a constant function of some aspect of the environment, and he will find this to be the scientific description of the phenomenon he is studying. Then with this accurate descrip-

tion as a basis, he can proceed to analyze it into its reflex components and the relations by which they have been organized into behavior.

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KANT AND AFTER KANT

THE discussions of causation in recent numbers of this JOURNAL have come to my attention just as in my teacher's capacity I happen once more to be going over Kant's—as I hope—still memorable "Deduction of the Categories." Accordingly, while I am myself certainly no Kantian, or at least no more Kantian than pragmatist, creative evolutionist, or anything else you please,—so long as it is quite up to date!—and while I shall not brave all the minutiae of the various articles which have appeared and which have been developed with so much keenness of analysis, I would here discuss some of the phases of causation that have been in question, in the light of Kant's doctrine of the categories. This doctrine, at least when read between the lines or for its inner logic, has seemed to me to afford a certain historical sanction to the views, or some of them, now finding expression.

Of course, all doctrines, even Immanuel Kant's, must have their inner logic, which really or seemingly is hidden from their propounders; really hidden by their humanly limited vision or understanding, their thought being or building beyond their knowledge, or seemingly hidden by the traditional language in which the new ideas have been put, old bottles holding the new wine. In any case, moreover, discovery of this inner logic must always be significant, of course for several reasons, but especially because, as in the present instance, it may enable interpretation of later doctrines in terms of earlier. The historical sanction so provided is never to be despised, however superior the later time may feel.

Thus, as to Kant's "Deduction of the Categories," few if any will gainsay that its real interest is rather in the *principle* of category than in the table of categories, this interest being paramount in the Transcendental Deduction, and, as hardly needs to be said, the principle is not like in kind either to the table or to any one of its individual members. The table and its twelve members are not, indeed, without meaning and importance, but, when all is said, they show more of the old bottles than of the new wine. The principle of category, however, best seen in the "synthesis *a priori*" of the "unity of apperception," calls, as I would point out at once, for an objective world which as positively experienced always is both in space and in time a *given* manifold, discrete and pluralistic, on each and

every possible plane of experience; a given manifold of sensations, of perceptions, even of conceptions; and just this manifoldness, empirically real and in no sense formal, being—if the verbal circumlocution be needed—materially and pluralistically manifold, is at least one of the consequences of Kant's *a priori* principle that specially concerns us here. Obviously, in so far as the manifold is "given," the experience is intuitive and I may suggest also that such a given manifold is the natural, the logical, empirical correlative of whatever compulsion or necessity may belong to the *a priori* unity. But, again, here and now the important point is the objectively, empirically real manifoldness. Unity, if *a priori*, may never be found; it may never be empirically real; as Kant insists, it will and must be always "transcendental" of all possible positive experience; it must be something with which we knew, never something directly and positively known or seen face to face. In fact, as to this,—and here one may see Kant's real or seeming blindness to the meaning of his doctrine,—even to work out systematically a table of just so many categories, *system*, or *table*, of categories involving something very like a contradiction, is really to compromise the principle and its *a priori* unity, its "transcendental ideality." Such a table, too, besides offending the principle by *presenting* unity or system, would lose virtue from the sure taint of the influence of the medium of expression on which its construction would have to depend. Certain sentence-forms, for example, or even the idioms of some particular language, would undo the principle as a true principle.

So, at least for the inner logic of Kant's Deduction, only category, the principle of category, not any particular category in a system or table, is truly *a priori* and the basis of the possibility of "synthetic judgments *a priori*"; and any of the particular categories, *e. g.*, causality, can be quite categoric, not as one in a formulated system or scheme, but primarily only as being freely loyal, or free to be loyal, to whatever the principle, itself free, would require.

Now the free principle of category, as already said, is unity, the *a priori* synthetic unity of apperception. It is called unity, I suppose, for lack of a better name. Students, however, of the inner logic, the deeper meaning and motive, of Kantianism, need to discriminate most carefully between unity and uniformity. The unity, really involved in the principle of category or in the synthesis *a priori*, must be free from the slightest suspicion of uniformity and also, I add, from any suspicion of the peculiar sort of universality and necessity which uniformity must always carry. Degrade or corrupt that unity to uniformity and, again, you would compromise or betray the apriority. You would betray also the value of the enabled synthesis. Uniformity, if *a priori*, would seriously check

the very thing which, above all others, Kant seeks to show to be possible, namely, transcendence of mere analysis and of those "highest principles of all analytic judgments," the principles of identity, contradiction, and excluded middle. An *a priori* uniformity would hold the mind to what it had already instead of enabling it to reach outward and so to get in experience or to have and to hold in experience something that could never be worked out analytically from within or that could never be found as conformal or uniform with anything already known. In short, only to be very repetitious, the principle of category, the free unity of it, free from the limitations of any system or table and free from any blasting confusion with any uniformity, calls for an objective world, a world in experience, that is indeed "materially and pluralistically a manifold"; to use what, thanks to James, is of all possible descriptions the most emphatic, it calls for a *pluralistic universe*. Its world or universe can show empirically no basal conformity or uniformity. On the contrary, to pile superfluity on repetition, unless *a priori* unity—not uniformity—and its demand count for nothing, the universe is bound again and again, say even constantly and everywhere, to violate any test of uniformity.

Only such an *a priori* unity makes the desired or required synthesis possible, and only a "pluralistic" manifold can express or realize the possibility. In Kant's time, I remark in passing, the time of revolution from medievalism to modernism, *real* addition or acquisition, that is, synthesis instead of analysis, as a *natural power of man* instead of a result of some power acting from outside, *e. g.*, a miraele-working God, was of supreme importance; so that Kant, however hampered by traditional standpoints and traditional language, in insisting on mind's having, as it were, a native hold on novelty and real, not just formal, difference, on mind's being born to get, to grow, to outdo, and even outlive its *formal* structure at any time, in short, in making "synthesis *a priori*" the central problem of his theory of knowledge, if not also of his entire philosophy, was plainly serving the modern spirit.

But what of causation? Returning to causation, we may say the following and still be in the spirit, if not in the letter, good Kantians. Thus, introductorily, under the free unity of the principle of category the world of all possible experience must be a moving, active, living world; not such a world as, for example, orthodox creationism has imagined, the result of some sudden origin, produced *ab extra* and *ex nihilo*, but—except for those who would still hold to the mechanicalistic view—such as the evolutionists have imagined. I have sometimes expressed the difference between creation and evolution as that between the process by which a single determinate plan

or programme is initiated and carried out, and the process, so much freer, by which a general or indeterminate principle, hospitable to an indefinite number of determinations, is initiated and carried out. Only the general principle would hardly require—or allow?—any initiation spatially or temporally. Again, the difference has a certain resemblance to that between life under restraint of the letter of some law and life under the spirit. But, as I was saying, under a free unity as the principle of category the world is an active world; perhaps, too, even a self-active world, for, *quod ipsi dixit*, whatever makes experience possible also makes the objective world and, answering to that free unity, as a *priori* condition or opportunity of experience, I seem to see a self-active world. The latter point, however, is unimportant. Suffice it, if activity is seen as belonging to the world *and if also the changes realized by that activity are appreciated as necessarily qualitative*.

Why necessarily qualitative? Anything but qualitative change, equivalent to real causation, would simply betray the *a priori* synthesis that the unity—never uniformity—makes possible. If causality be held to the nature of the principle of category, no effect in its entirety can ever be formally analyzable out of its cause; no effect can ever be found, in other words, formally wholly like its cause; but in all causation there must be some distinct change in kind. Or, to say the least, if causation were anything less than such change, the Kantian synthesis *a priori* would be as meaningless as empty. It would have no *raison d'être*.

And now may be concluded, as to causation, three things: (1) Causation truly is dual, that is, essentially an affair of two terms, not of a single term. (2) Incommensurability, while not exhausting the relation, is a necessary phase of the relation of cause and effect. And (3) the relation implies a certain real, very real, necessity, but not a merely mechanical necessity. Let me discuss these conclusions in order.

1. To say that causality is dual is to make it comprehend the cause-effect *relation* instead of identifying it only with the antecedent term of that relation. Moreover, whatever may be the violence to ordinary views of time and of things in temporal sequence, so truly does and must causality comprehend the cause-effect relation that even the consequent effect must somehow have some part in the causation. Exactly what part it is not necessary to say here, beyond suggesting that for evolution consistently maintained something of the sort would have to be true; in some real sense the consequent must be immanent in, actively present in, the antecedent; but that the duality and the resulting part of the effect even in the causation are logical conclusions from Kant's doctrine of category and syn-

thesis is, I venture to assert, beyond dispute. Were causality not dual, did it not comprehend the relationship, there would be no *a priori* synthesis, no *a priori* implication, by the cause, of something—the effect—not analyzable out of the cause; there would, I say, be no such synthesis made possible by the category of causality. Again, causality being category, for Kant there must be the synthesis, and the synthesis must be *a priori*, of cause and its formally external effect; so that, *in view of the synthesis*, causation must always be identified with the relation, not just with the antecedent, and so must include the effect.

But, to use the language of a much-discussed issue, is causation really thing or relation? To this question I can here recognize no answer, but that it is *both*. Causation is always both thing and relation. Always there are the cause and the effect as two things and there is the relation, the cause-effect relation, not less real than the two things. Moreover, causation being both, the result is, so to speak, another dimension for the duality of causality. There is the duality of cause and effect, two formally, qualitatively different things, one being, *so far as any possible analysis goes*, external to the other; and there is also, as another dimension, the duality of thing and relation. These two dimensions, furthermore, being like all true dimensions, implications of each other, manifestly spring together from the difference between analysis and synthesis, the duality of things being result of the impossibility of analysis of the whole effect out of the cause and that of thing and relation being result of the synthesis *a priori* by which the limitations of analysis are transcended. Of course, under the standpoint of mechanicalism, cause and effect are supposedly formally identifiable, and under that standpoint, accordingly, either duality would lose its significance and character; but mechanicalism, while not wholly impertinent to the cause-effect sequence, being true of it, but not exhaustive of it, is the very “ism” that Kant would outwit by his transcendentalism, by his synthesis *a priori*, a synthesis of a free unity—be it kept constantly in mind—not of uniformity.

Thing and relation constitute a dualism that in general, not merely in the special field of causality, has given trouble to many. Kant, I imagine, would say that transcendently a thing was only its relations, but that empirically no relations ever would or ever could exhaust any thing. Always in anything, empirically, there must be a residuum of the unrelated, which Kant, albeit too strongly disposed to hypostatize it, accounted for in his so-called thing-in-itself. And Kant's view of a thing and its relations, if I be right in stating it as logically his, seems to me substantially correct. It must be correct if there be any real difference, I mean anything more than

a difference of size or degree, between unity, under which a thing would indeed be exhausted or at least exhaustible by its relations, and uniformity, under which it certainly could not be. As to the suggestion that unity and uniformity might differ only in size, the idea is that the former would then be an infinite unity, the latter finite; but, as matter of fact, although mechanicalism has sometimes retreated on infinity in this way, finite and infinite, instead of differing only in size or of being only different degrees in kind of the same thing, themselves make a real duality. Infinity is no mere limiting term in kind with the finite. Here, too, I would remark, perhaps with more digression than pertinence, that unity and uniformity, the infinite and the finite, synthesis and analysis, as separable phases of experience, correspond to what is vital and what is formal, respectively, to the personal and the institutional, the immediate and the mediate or instrumental. The great struggle of Kant's philosophy, in which we have a new wine forced into old bottles, may, then, be said to be an adequate account of personal experience in institutionalistic terms or to be the effort of a traditional formalism, by becoming universal, to be vital.

In conclusion as to the nature of a thing and its relations, everything, belonging as it does to a universe, not to a mere mechanism, is dual in its nature, in experience being always at once a related thing and an isolated thing. That the distinction between the relational and the isolational, or say the mechanicalistic and the pluralistic, characters of a thing must be a fluent or moving one, the material ground or content of either, never remaining the same, disturbs the fundamental reality of the distinction not one jot or tittle. On the contrary, if one may speak in comparatives here, such a moving distinction or duality has more reality, not less, than one which is materially fixed. The fixed distinction can be but one case of the infinite cases comprised in the distinction as moving and, to refer anew to institution and person, for the institution distinctions in general are naturally fixed; for the person, as person, fluent. And now, to sum up specifically as to causality, causality is dual; its duality has two dimensions, that of two different things and that of thing and relation; and in either dimension the distinction, although not without fixity in experience, is at once fluent and very real. Causality, again, is not without mechanical character, but is never exhausted by this character.

2. If possible, still more important than the two-dimensional duality of causality is the incommensurability. A statement, which, after all, is more rhetorical than logical; since the incommensurability of cause and effect, instead of being a different fact, is only the duality in a peculiarly interesting aspect. Thus, not only must

one see in the incommensurability a direct consequence of the synthesis being based on an *a priori* unity, under which empirically causation must show the two dualities, not on an *a priori* uniformity, under which empirically cause and effect would have to be commensurable and not dual, but also one must realize that there is involved here a very significant idea of what constitutes possibility. That the relation of the possible to the actual must differ radically where the test is unity from what it would be under uniformity is very evident and, of course, the sort of possibility realized by an incommensurable effect is that which only the free unity could comprise. The effect, linked by the synthesis *a priori* with the cause, must be the realization of some real possibility of the cause, but there could be no true synthesis if that possibility were limited only to what was commensurable. In the case of any infinite series new terms, always commensurable with those already actual, may be developed without limit. In the universe, viewed mechanicalistically, new states, continuing the routine, may be added indefinitely, provided they conform. But the possibility so realized can hardly be said to make for any real increment. It is an empty, merely negative possibility, a formal possibility. Its realization is indeed only routine, effecting, of course, multiplication, accumulation, or say, borrowing from chemistry, saturation, perhaps even a promising saturation; but, taking it in and for itself, the universe which may claim it, so to speak, in its repertory is not significantly the gainer. Kant's category, however, with its synthesis *a priori* calls emphatically for a possibility not so bound. In Kant's world effects must be more than just sequences in a routine. They must, it is true, realize possibilities of their causes, but also in doing this, besides showing some mechanical relation, they must show a difference in kind; they must be at some point incommensurable.

Now some one may say that so to view the effect is only to return to orthodox creationism. To recognize effects so external to their causes, possibility so foreign to the actual, will seem to them only to be undoing the work of all enlightened modern thinking from the time of David Hume down even to the last authoritative word for evolution. Not so; indeed very far from that. Instead of reverting to orthodox creationism, the view here reached actually silences that creationism once for all by making evolution itself creative. In the universe, which we may experience under Kant's *a priori* unity, effects, although necessarily having their formal externality to their causes, can not be really or vitally external. Although always in some respect formally external, although incommensurable and different in kind, they are neither caused *ab extra* nor produced *ex nihilo*. The natural changes of unity are so very different from

old-time creation! They differ greatly, too, from evolution-mechanics and its changes of uniformity without wholly excluding these. They are the changes, the wholly natural changes, of a creative evolution, always realizing, as they do, ever and above any manifested routine, something really potential in, but incommensurable with, the cause.

3. In my discussion of the incommensurability of cause and effect, which the Kantian category requires, and of the no less requisite real—in distinction from only formal—possibility that any true effect is the realization of, I could not avoid certain intimations of necessity in the cause-effect relationship. Thus I said: "From any cause may come, nay, must come, as effect, something realizing a possibility of that cause that is different in kind." The fact, in other words, that the effect differs in kind, or formally, from the cause, being or at least containing some new thing, does not and logically—remembering once more the synthesis *a priori*—can not mean that causation is ever a random, haphazard, arbitrary thing. On the contrary, although no formal necessity can wholly determine the sequence of effect upon cause, always, thanks to the transcendental unity, there must be some real and vital necessity determining that sequence; there must be such necessity as something superior to the mechanical necessity by which empirically the sequence may be mediated. As possibility must transcend any mere possible conformity or commensurability, so necessity must also transcend any such determination. Again, that we may never find a complete and absolute necessity between cause and effect as they appear is no good reason for denying any necessity in the sequence; it warrants only denial of mechanical necessity as absolute or assertion of experienced mechanical necessity as only mediate. The mechanical and the vital being different as uniformity and unity are different, there is still left, over and above any evidence of mechanicalism, for the sequence of cause and effect, a vital necessity, real because vital and absolute as real. In short, creative evolution, although superior to mechanical routine, the mere multiplication of commensurable forms, which forbids—among other things—"missing links," is no loose hit-and-miss affair. Its creations, as the realizations only of such possibilities as are true to the synthetic unity *a priori* of the Kantian category or—I add with regard to the empirical equivalent of that unity—to a pluralistic manifold of experienced uniformities, are nevertheless under law and order, under a *principle* of conservation. So, although absolutism be indeed dead, long live absolutism! Long live the new absolutism of creative evolution, the absolutism of unity or—as Kant would have us say—of synthesis as *a priori*, as too large and too deep, as too vital, ever to be empirical *except pluralistically*. No law may ever be *the* law; yet, all the more, *the* law is; *laws*

are. No uniformity may ever be unity; yet, all the more, in this world of many different uniformities there is unity and there is the necessity that unity enjoins and that all uniformities serve or mediate. Long live this "Power behind the Throne"; behind all thrones; a power whose only law, the only absolute law, is the *principle* of law and order or, just once more, the "synthetic unity *a priori*."

Finally, thus to be able to translate the old-time Kantian Transcendentalism into the recent creative evolution, to be able to read in Kant's causality as category *a priori* the nature of causation as involving (1) duality, (2) incommensurability, and (3) necessity, but *vital* necessity, is at once not without a large tribute to the "vision," if possibly not the clear seeing, of Kant and decidedly with a most significant historical justification of the new creationism and its great retinue of other important "isms."

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RUSSELL'S THEORY OF TYPES

MR. RUSSELL'S solution of the paradoxes collected in the "Principles of Mathematics," through his theory of types, has been received with little comment other than explanatory notices, which is a situation that is somewhat puzzling, for the consequences of the theory for logic extend far beyond the few paradoxes for which it was invented, and its detailed statement makes an elaborate introduction to the algebra of logic that it would be pleasant to avoid.

The problem of the paradoxes is the old problem of the *insolubilia* that formed the text for many chapters in scholastic logic, and the principle of the vicious circle, that no function may have itself as an argument, calls to mind Peter von Ailly's "*Pars propositionis non potest supponere pro toto*," and the provision that a "function is not determinate unless its values are previously determinate,"¹ recalls the scholastic doctrine of *restriction* which made a verb in the present tense apply only to the instant before its utterance, not the time of utterance, and so did away with the paradox of the liar. In the theory of types we have Peter's maxim worked into a consistent and thorough device that successfully treats the paradoxes. A typical instance of the paradoxes is, "This proposition is false," which if false can be proved true, and if true can be proved false. If we represent "this proposition" by P and "false" by f we may write it: $(P < f) < (P < f)'$ and $(P < f)' < (P < f)$. One of these expressions would have given no paradox, for that a proposition implies its contradictory means only that it is false; but that its contradictory

¹ "Principia Mathematica," page 43.

also implies the proposition results disastrously. Let r be such a proposition; we then have $r=r'$, and on multiplying by r , $r=0$, or on multiplying by r' , $r'=0$, and so $r+r'=0$; but by the law of contraction $r+r'=1$. Hence we have $1=0$, which is a manifest paradox. Russell finds the root of the paradoxes in their self-reference. This proposition could have been derived from the propositional function, "There is a proposition x and x is false," and the paradox results from allowing the function itself to be a value of x . This possibility must be avoided, and is avoided by the theory of types which establishes certain ranges of significance for the variables in all functions or propositions. If the function or proposition itself is allowed to be the value of one of its terms a paradox results. We shall then make this impossible by the principle of the vicious circle, "Whatever involves all of a collection must not be one of the collection." Thus the range of significant values of a variable in a function must exclude the function itself or anything derived from the function. This exclusion is accomplished in detail by the hierarchy of types, whose exact statement would be too long to repeat here. The general outlines of the theory are as follows: All individuals (entities that are not propositions or functions) constitute a group, the *first logical type*; all propositions about individuals only, or functions that have as possible values for their terms individuals only, are first-order propositions or functions, and themselves constitute the *second logical type*. Propositions or functions which take as values for their terms not only individuals, but first-order functions or propositions, constitute second-order propositions or functions, a higher logical type. To be *predicative* or legitimate a proposition can have as values of its terms only members of a type lower than itself. Only such propositions are meaningful, or true or false. "This proposition is false," being of order n and having the same proposition of order n as one of its terms is meaningless. "I lie" becomes "I am making a statement of order n and it is false," which is false merely, for no statement of order n is made: the actual statement being about an n th-order proposition is itself of order $n+1$ and not n .

The interest of this theory for general logic which deals with propositions only—for propositions alone can be true or false—lies in the fact that a proposition in order to be meaningful must allow terms of a lower order only. This is sufficient to solve the paradoxes, but sufficient to do much more than that. We have "solved" a large number of statements whose need of solution was decidedly questionable. Mr. Shearman, in his "The Scope of Formal Logic," has called attention to the fact (which Russell has also remarked) that there are propositions thus made illegitimate that lead to no paradox, and cites the "law of contradiction" that all propositions are true or

false. This proposition is to be outlawed by the theory of types, since its reference to "all propositions" includes itself and so violates the principle of the vicious circle. Mr. Shearman suggests that the theory of types needs limitation, but he does not offer any criterion that will select the paradoxical propositions for elimination and leave those that are harmless.

Any reference to "all propositions" has been declared meaningless. More than that, since a proposition about "some propositions" is equivalent to the denial of a statement about "all propositions," that also is meaningless. In fact, any statement about "propositions," becomes impossible. "There exists a proposition" is equivalent to "It is false that all propositions are non-existent." Since the latter is illegitimate, the first is also. Moreover, in the statement, "'X implies Y' is a proposition" is a proposition," the two terms written "proposition" are in different types, in different universes, and it is difficult to see how they can have any common meaning or can be compared. They were better represented by different words. A like situation holds with respect to truth.² "It is evident," says Russell, "that the definition of *truth* is different in the case of general judgments from what it was in the case of elementary judgments. Let us call the meaning of *truth* which we gave for elementary judgments 'elementary truth.' Then when we assert that it is true that all men are mortal, we shall mean that all judgments of the form '*x* is mortal,' where *x* is a man, have elementary truth. We may define this as 'truth of the second order' or 'second-order truth.'" Judgments about truths of the second order will constitute third-order truth. An assertion of the truth of a statement can not have truth in the same sense in which it uses the term. There seems to be nothing common to first-order truth and second-order truth except that they are designated by the same name which the theory leaves an accident or a mystery. The difference in type leaves no community whatever.³

Self-reference of this sort may be at the root of the paradoxes, but it exists in many propositions without apparently making them meaningless. "This proposition is true" does not yield any paradox; it may be held meaningless because it has no reference outside itself, which is John Wyclif's method of dealing with the paradoxes in his "Tractatus de Logica"; but in the statement "This proposition has five words" we seem to detect something that could be meant. The

² "Principia Mathematica," page 48.

³ The effect of the theory on Cantor's theory of transfinite ordinals is equally astonishing. The first transfinite ordinal (ω) being the ordinal type of all finite ordinals is in a different universe from these, and its addition to a finite ordinal or multiplication by a finite ordinal (which are necessary to the derivation of new transfinite) becomes meaningless.

proposition refers to its own expression. Apparently the theory of types would make it meaningless. One more trivial example: would not the statement, "This article is too long by so much as this sentence," appended to an article in this JOURNAL be true and derive its significance from its self-reference?

Perhaps it would be a mean spirit that would ask whether the principle of the vicious circle, that no proposition can refer to itself, refers to itself in speaking of "no proposition," or whether, since each implication in logic contains as unexpressed premises all the axioms and principles that apply to the case, Russell has not made each proposition say in effect: "This does not apply to itself." These questions can be overlooked in the interest of a solution. But there are more serious difficulties. "If mathematics is to be possible, it is absolutely necessary . . . that we should have some method of making statements which will usually be equivalent to what we have in mind when we (inaccurately) speak of "all properties of x ." (A statement about all properties of x is itself a property of x , and so is illegitimate under the theory of types.) This is to be remedied by the axiom of reducibility. This assumes "that every propositional function is equivalent, for all its values, to some predicative function of the same arguments."⁴ Stated symbolically:

$$\vdash: (\exists f) : \phi x. \equiv_x f!x.$$

The question occurs: If only predicative propositions are to be true or false, how can we have a non-predicative proposition formally equivalent to a predicative proposition, that is, true when it is true, false when it is false? That would seem to require a true non-predicative proposition, which is a contradiction. The principle of the vicious circle requires that non-predicative functions be meaningless. Yet reference is made repeatedly to terms which *satisfy* a non-predicative function. This occurs in the definition of identity and elsewhere:⁵ " x and y are to be called identical when every predicative function satisfied by x is also satisfied by y . We can not state that *every* function satisfied by x is also satisfied by y , because x satisfies functions of various orders, and these can not all be covered by one apparent variable. By virtue of the axiom of reducibility it follows that, if $x = y$ and x satisfies ψx , where ψ is any function, predicative or non-predicative, then y also satisfies ψy . Hence, in effect, the definition is as powerful as it would be if it could be extended to cover *all* functions of x ." What *satisfaction* of a non-predicative function can mean is not clear. If it means "makes the function a true proposition" we may have self-reference in a true proposition resulting

⁴ "Principia Mathematica," page 174.

⁵ "Principia Mathematica," page 176.

from a non-predicative function. If it means "makes the function a true proposition without paradox" the whole question is begged. The axiom of reducibility seems to be an acknowledgment that the theory of types is too "drastic" that does not offer any effective relief.

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REVIEWS AND ABSTRACTS OF LITERATURE

Der Gegenwartwerth der geschichtlichen Erforschung der mittelalterlichen Philosophie. M. GRABMANN. Akademische Antrittsvorlesung. Wien: Herder. 1913. Pp. 94.

Comparative estimates in philosophy are received usually with caution; for the task is difficult, and the provincial temper is persistent. But an attempt to find in the philosophy of another time,—and that the Middle Ages,—direct value for the solution of present-day problems, is very liable to be ignored as presumptuous. In reality, however, this brochure is adapted to perform an important service; and the circle of its appeal is wider than might appear. Its spirit and form are of the kind permissible after research in a given field is well under way, and before the results are finally in. Accordingly, its value lies in the stimulus furnished, rather than in the broad claims made. In this sense, the able mustering of facts and reflections will appeal to all who are interested in ideas and their history; and the suggestions concerning the continuity of thought and the value of the past will be welcomed. The work may serve, also, for orientation in this field, as a supplement to the larger works of Picavet.¹ In turn, its interpretative aspect may be supplemented by the works of Farge, of Sentroul, and of P. Rousselot, for example.

The writer is an authority in his own field,² who is also *au courant* with contemporary thought. And his work affords, on the whole, a happy illustration of the neo-scholastic's capacity for the objectively historical attitude. The nature of the present work makes it partly polemical; but the polemic is directed to adherent (*e. g.*, pp. 41 ff.; cf. p. 92) as well as contemner of the "*philosophia perennis*." He urges the "stilling of all prejudice on both sides, with an eye single to faithful pictures of scholastic and of contemporary thought" (p. 46; cf. pp. 32, 44), and a mutual understanding in the common search for truth (p. 78; cf. p. 94). The work is, therefore, significant as part of a *rapprochement*; the catholic scholar is losing his fear of the new, and his non-catholic colleague is regaining his faith in the old. The shadow of the Renaissance is passing. And with objective historicity on both sides established, we may hope to see our

¹ "Esquisse," etc., 2 ed., 1907, and "Essais," etc., 1913.

² Grabmann's most important work is the "Gesch. d. schol. Methode," Bd. I., 1909, Bd. II., 1911, Bd. III., promised. The next in importance is his "D. philos. u. theolog. Erkenntnissth. d. Kard. Math. v. Aquasparta," 1906. Other works: on Thomas Aquinas, Ulrich of Strassburg, John the German, and the modern scholastic activity.

debt to the past in truer perspective and so find stimulus in the medieval, as well as in the ancient, habit of thought.

Research in patristic and medieval thought now constitutes,—with that in the allied hellenistic field,—the chief labor in the history of philosophy. The question, therefore, naturally arises: Is there a value proportionate to the labor? Our author answers emphatically in the affirmative, and for a threefold reason. The deeper knowledge ensuing, first, gives a proper basis for *evaluation* of the medieval philosophy (pp. 11–33); second, furnishes focus and direction for its *exposition* (pp. 33–39); and, third, points out its *use* for present-day problems, both in setting and in solution (pp. 39–91). For evaluation: (1) in removing erroneous prejudices (that scholasticism exhibits (a) mere formalism, (b) no sense of the actual, (c) servile acceptance of Aristotle, and (d) subservience of philosophy to theology); (2) in giving a more adequate appreciation of their temper and problems. For exposition: as revealing (a) their common possession (Baeumker's fruitful "Gemeingut") as distinguished from separate teachings, (b) their interest in special problems (notably in psychology and epistemology), (c) the mutual relation and due perspective of the various doctrines, (d) the development of ideas, and, (e) their relation to modern philosophy. For present use: the specific respects in which their philosophy may contribute to our problems in logic, epistemology, metaphysics, natural philosophy, ethics (with allied fields), and natural theology, respectively.

It is obvious that no historian would seriously make issue of the first two; and, in fact, they are propædeutic to the third, which constitutes the major motive of the work. This appears at once in the author's identification of his labor with the conviction of Ehrle, that "the most eloquent commendation and apology of scholasticism, and the surest guide to its further expansion, are to be found in its history" (p. 11; cf. p. 94). The task is, therefore, twofold; the defense of scholasticism, and the proof of its use. But each of these has a double import. The defense is against those within and those without. And the use lies not only in putting, but also in solving our present problems. The author's neglect of these distinctions results in a needless confusion of design. Thus, in the first part, the negative aspect engages his attention at the expense of the positive basis of evaluation,—an unfortunate omission. The upshot of the second makes an estimate of the medieval philosophy as yet premature; oddly enough, primarily directed to catholic scholars (p. 92); while both are preparatory to the main thesis, that in all realms of present philosophical inquiry the medieval philosophy may cure our distraction! His real meaning is this: That scholastic philosophy is sufficiently known to enable refutation of calumny, and to give valuable aid in orientation, with some suggestions for solution, of present-day problems; and that it is too little known by non-catholics for their due profit, and by catholics for their proper defense.

This confusion is augmented by the author's indiscriminate use of important terms, such as medieval, scholastic, Thomistic, Aristotelian, and neo-scholastic. On the one hand, what purports to be medieval philosophy is, for the most part, scholasticism (as distinguished from de Wulf's anti-

and a-scholastic movements) or neo-scholasticism or neo-Thomism, as best suits his purpose. Hence his proof depends so largely on modern-scholastic material. Whether this is a distinctly new movement in philosophy (de Wulf) or not, his proof seldom measures with the thesis in its broad form. And the restriction is unfortunate; for the spirit of modern, and so of contemporary, philosophy is to be found in the "secular byways" rather than in the highway of scholasticism—to say nothing of the non-Christian speculation of that age. On the other hand, scholasticism and Aristotelianism are frequently identified, without due account of the amplification. The author should have indicated more clearly that it is frequently ancient thought which is under tribute, in pointing out the value of medieval speculation. Here, again, the restriction is unfortunate; for "Platonism" is quite as significant in the medieval philosophy as is Aristotelianism, and in some of the fields surveyed the proof would have been readier by the former than by the latter route.

With the foregoing in mind, the reader will better understand the apparent discrepancy between thesis and proof. Thus, much of the author's attention is given to proof of the following. That scholasticism and contemporary thought are not so foreign to each other as is frequently maintained (pp. 47, 78); that there are many parallels, or points of contact, between the medieval and the modern (pp. 70, 53, 55, 69, 76, 78, 80, 93); that the scholastics were often precursors of modern ideas and methods (pp. 47, 62, 64, 72, 75, 84; cf. pp. 38 ff.); that a belief in the Aristotelian scholastic principles can be consistently combined with a thorough knowledge and use of modern science (pp. 57, 66, 67, 77); that the Alberto-Thomistic philosophy still has a message for us (pp. 58, 68, 75, 93); and that a close study reveals their powers of keen analysis and observation (pp. 60, 65, 75, 55). Such proofs would show that scholastic (and certainly medieval) philosophy may be exceedingly useful for orientation in the putting of our present-day problems; not that it directly contributes to their solution. But the proof is decidedly worth the labor. And in this connection is pertinent the author's assertion (p. 38), which can be amply substantiated, that "research is revealing more and more how scholastic (*sic*; medieval) thought exerted its influence in modern philosophy down to the threshold of the Kantian school."

However, there is not lacking attempted proof of the major thesis. Thus, the ever-growing demand for metaphysics may be satisfied in scholasticism (pp. 52 ff.), and its conception of the soul is of value "at a time when the soul without a substance is being discredited" (p. 68). The logic of the Husserl School, and the "inductive metaphysics" of Külpe are taken to be essentially scholastic (pp. 48 ff., and 53 ff.). The Aquinate's psychology of the emotions, and memory, and imagination present illuminating analyses (pp. 62 ff.), as also his profound insight into the principles of right and allied themes (pp. 71 ff.), and especially the problems of practical ethics (pp. 75 ff.),—to which may be added his preeminence as an interpreter of Aristotle (pp. 21 ff.). Finally, the philosophy of religion may well find profit in the thought of an age given unreservedly to the religious attitude (pp. 81 ff.). To the foregoing may

be added the value of the biological viewpoint (Aristotelian-scholastic), to which the author limits himself in considering natural philosophy (pp. 55 ff.). He might well have cited, also, the Aristotelian conception of change (amplified in the middle ages), which an eminent contemporary physicist (Duhem) finds essentially correct.

Thus, it is clear, that the author assumes a burden needlessly large, and yet performs a service of value. This service consists in correcting prejudice, and in directing our distracted transition era to the past. The former is accomplished in a substantial manner; and so is made possible the operation of the latter, which may be regarded as twofold. First, the stimulus which comes with realizing the slow progress in the history of thought; for this checks undue passion for originality, and supplies a balance not otherwise possible. Second, the actual insight and illumination which issue from a renewed acquaintance with the fresh reflection of inceptive stages; for only so operate again ideas which have become obscured in the assumptions of a given development. The service is, therefore, of real value. For, while we are no longer in danger of "rejecting without understanding" the ancient and medieval philosophy,—as Barthélemy St. Hilaire once warned us—still the modern spirit requires to be cautioned in its tendency to regard the last as always the best. In this sense, the importance of the work is not likely to be overrated.

As for criticism of specific points. However keen was the purely philosophical interest in the middle ages (and the citations are significant pp. 22 ff., 35 ff.), still the ancillary relation of philosophy to theology is not disproved. It is quite clear from Mandonnet (*Siger*, etc., Vol. I., pp. 27 ff.), that after all the theologian was rated above the philosopher. And the citations from Thomas are weakened, when we recall that it is the same Thomas who appeals, with his famous threefold analogy, for a *crusade* of the intellect. Furthermore, an implicit admission is found in the author's conclusion (p. 8), that the theological is more important than the philosophical literature for a proper understanding of medieval thought; where-in he may be supported by such divergent authorities as Renan, Picavet, and Mandonnet.

The consideration of natural science disregards the important distinction between observation and experimentation. Thus, for example, he accepts the ranking of Albert the Great above Roger Bacon (p. 15), forgetting the words of the former³ concerning his faithful adherence to the Aristotelian philosophy of nature. But whereas Aristotle excels in observation-without-experimentation (Zeller), Bacon is professedly devoted to experimentation,—which the history of science exhibits as the touchstone of progress. In this connection is significant the author's citation of Witelo (p. 61), while suppressing the fact of his complete dependence upon Alhazen, who is so important in the history of experimentation.

The author's enthusiasm for the Thomistic scholasticism frequently misleads him. Thus, he assumes a homogeneity in the thought of the Aquinate which is hardly warranted (*e. g.*, von Hertling), and overlooks the fact that a refining criticism has not yet given us an adequate account

³ Op. ed. Borgnet, Vol. VIII., page 803.

of this eminent thinker. Again it leads him (pp. 18 ff.) to overestimate the philological accomplishments of Thomas; whereas, it was apparently his failure to pay just this price which issued in the too rapid crystallization of the dialectic, as distinguished from the naturalistic elements in Aristotle, and so crippled the vitality of scholasticism (Picavet). The same enthusiasm would also account for the omission of a most important factor in his second division; namely, the respective influence upon medieval thought of the various elements in ancient philosophy. It seems ever clearer, that this requires consideration, perhaps more than any other single factor, in rewriting the philosophy of the middle ages. The author elsewhere⁴ takes due account of this, although he inclines to underestimate the "Platonic" element,—which is less obvious, but certainly operative, in the Thomistic synthesis.

The best case for the author's main thesis is to be found in the realm of religious philosophy; but he strangely depreciates it (p. 79). This is doubtless due to his exaggeration of the modern skeptical spirit (pp. 80 ff.), and oversight of the theistic elements in contemporary philosophy of religion and of the pantheistic elements in medieval (and even Thomistic) thought. An age so permeated with the religious spirit,—as Taylor's "Medieval Mind" portrays in such admirable proportions—ought to be of signal importance for revealing the response of the human mind to all stimulation under such conditions. Their genius for religion has, therefore, a significance similar to the modern genius for science. But our author is not adequately conscious of the import of this. The heart of the matter is reached better by Kaulich, I believe. "Whoever," he says,⁵ "reproaches scholasticism for its attention to the infinite and eternal, and its intimate fusion of theology with philosophy, has simply failed to see the real tendency of all philosophical endeavor,—which is precisely its consummation in the philosophy of religion. . . . Scholasticism was conscious of this from the outset, and gave its mind wholly to it. Accordingly, its essential character is that of religious philosophy." This would seem to be the best vantage-point from which to appraise properly the thought of the middle ages.

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Fichtes Leben. FRITZ MEDICUS. Leipzig: Verlag von Felix Meiner. 1914. Pp. iv + 176.

During the past year, which marks the hundredth anniversary of his death, many books and articles have been published concerning Fichte; but perhaps of them all, none is more truly a memorial of what Fichte represented than his "Life," by Fritz Medicus. There are many characteristics to be desired in the author of a satisfactory biography, and Fritz Medicus has them all, or nearly all. Probably no one is better able than he to speak with authority concerning the details of Fichte's life and of the chronological development of the Fichtean philosophy. He has

⁴ "Gesch. d. schol. Meth."

⁵ "Gesch. d. sch. Ph.," page 30.

already written one book upon the subject, and the present biography, though now published separately, was intended to serve as an introduction to his much-needed edition of Fichte's writings. Until now, students of Fichte have been obliged to content themselves with the edition published by Fichte's son, a work which can hardly be described as critical and which, moreover, has become difficult to obtain. The new edition, though not complete, is nearly so, and includes everything of any importance for Fichte's theories. It could have no better introduction than the biography, which nevertheless is an independent piece of work, and by no means derives its value from its relation to the whole. Such a book naturally invites comparison with the life by Kuno Fischer, which it supplements and corrects and to a certain extent supersedes.

Accurate scholarship, however, is not the only requisite Doctor Medicus has brought to his task. He has made it possible to place implicit reliance upon his statements of fact, but at the same time he presents a picture of Fichte that attracts and interests. He unites critical acumen with sympathetic understanding. It is hard to select any particular portion for comment, but perhaps especial attention should be called to the chapters upon Fichte's relationship with Kant, the complicated conditions of his life at Jena, ending in the atheism controversy, and the development of his intellectual intercourse with Schelling. Throughout the book, Doctor Medicus shows his realization of the fact that the life of such a man is preeminently a chronicle of ideas; and fitting attention is given to Fichte the philosopher as well as to Fichte the man.

G. N. DOLSON.

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JOURNALS AND NEW BOOKS

THE JOURNAL OF ABNORMAL PSYCHOLOGY. April-May, 1915. *Hysteria as a Weapon in Marital Conflicts* (pp. 1-10): A. MYERSON. - A case is reported in which the origin of symptoms in hysteria are traced to a more simple mechanism than by the Freudian method. The writer claims women "resort to tears as their proverbial weapon for gaining their point. In this case hysterical symptoms seem to have been the substitute for tears in a domestic battle." This conception of hysterical symptoms as a marital weapon "does not explain hysteria; it merely gives a use for its symptoms." *The Analysis of a Nightmare* (pp. 11-18): RAYMOND BELLAMY. - The analysis does not resort to symbolism, but the impulses of the nightmare may be called sexual. According to the writer there is no necessity for considering that there is a repression where there is a dim place in the dream. "Only those things appear in a dream which are necessary to express the meaning of a dream." *Analysis of a Single Dream as a Means of Unearthing the Genesis of Psychopathic Affections* (pp. 19-31): MEYER SOLOMON. - One can root the entire life history of a dreamer by the analysis of a *single* dream. One must follow out to the ultimate ends the various clues which are given and the various by-paths which offer themselves in the course of the analysis. *An Act*

of *Every-day Life Treated as a Pretended Dream and Interpreted by Psychoanalysis* (pp. 32-45): RAYMOND BELLAMY. — An attempt is made to show "that any situation or experience can be analyzed with as good success as a dream and that a dream may be made to mean anything." A situation is analyzed and found to be a suppressed sexual wish; an analyzed dream shows the fulfilment of a fear. "Whatever we wish to make out of a dream—the dramatization of a fear, a joy, a joke, a tragedy, anything that can be suggested,—the result can easily be accomplished if only we be allowed the use of Freud's mechanisms and a moderate amount of symbolism." *Freud and his School: New Paths of Psychology* (pp. 46-66): A. W. VAN RENTERGHEM. — This paper is a continuation of one in the last issue of the *Journal*. Analyses are presented which have been made on cases of nervous prostration, of sleeplessness, of fear neurosis. The writer concludes, "Freud's great service is that he has opened before the physician a path which leads to the cause." *Reviews*: Eben W. Fiske, *An Elementary Study of the Brain*: E. W. TAYLOR. B. S. Morgan, *The Backward Child*: RAYMOND BELLAMY. Sir Oliver Lodge, *Continuity*: G. V. N. DEARBORN. H. A. Bruce, *Adventurings in the Psychological*: HERWARD CARRINGTON. R. Benon, *Des Troubles Psychiques et Nevrosiques Post-Traumatiques*: E. W. TAYLOR. V. J. Springer, *Verbrechertypen*: M. J. KÄRPAS. L. T. Hobhouse, *Development and Purpose*: G. V. N. DEARBORN. *Books Received*.

Armstrong, Robert Cornell. *Light from the East*. University of Toronto Studies in Philosophy. University of Toronto: Published by the Librarian. 1914. Pp. xv + 326. \$1.50.

Herrick, C. Judson and Coghill, George E. *The Development of Reflex Mechanisms in Amblystoma*. Reprinted from *Journal of Comparative Neurology*. Pp. 20.

Marconi, Henri. *Histoire de L'Involution Naturelle*. Traduite de L'Italien par M^e. Ida Mori-Dupont. Paris: A. Maloine. Lugano: Maisons d'Editions du "Coenobium." 1915. 15 Fr.

Martin, Lillien J. *Ein Experimenteller Beitrag zur Erforschung des Unterbewusstes*. Leipzig: Verlag von J. A. Barth. 1915. Pp. vi + 164. 5 M.

NOTES AND NEWS

LETTER FROM BERTRAND RUSSELL

TO THE EDITORS OF THE JOURNAL OF PHILOSOPHY, PSYCHOLOGY, AND SCIENTIFIC METHODS:

In a quotation from the *Athenaeum* printed in this JOURNAL,¹ I am represented as having said, "there may be perspectives where there are no minds; but we can not know anything of what sort of perspectives they may be, for the sense-datum is mental." I did not see the *Athenaeum*, and do not remember what I said, but it can not have been what I am reported as having said, for I hold strongly that the sense-datum is *not* mental—indeed my whole philosophy of physics rests upon the view that

¹ Volume XII., page 308.

the sense-datum is purely physical. The fact of being a datum is mental, but a particular which is a datum is not logically dependent upon being a datum. A particular which is a datum does, however, appear to be casually dependent upon sense-organs and nerves and brain. Since we carry those about with us, we can not discover what sensibilia, if any, belong to perspectives from places where there is no brain. And since a particular of which we are aware is a sense-datum, we can not be aware of particulars which are not sense-data, and can, therefore, have no empirical evidence as to their nature. This is merely the "egocentric predicament"; it is a tautology, not a "great truth." It is for this reason, and not because "sense-data are mental," that we can not know the nature of those perspectives (if any) which belong to places where there are no minds.

I do not know what is the definition of "mental." In order to obtain a definition, I should first inquire what would necessarily be removed from the world if it were what one would naturally call a world without mind. I see no reason why colors or noises should be removed, but facts which involve such relations as perceiving, remembering, desiring, enjoying, believing would necessarily be removed. This suggests that no *particulars* of which we have experience are to be called "mental," but that certain *facts*, involving certain *relations*, constitute what is essentially mental in the world of our experience. (I use the word "fact" to designate that which makes a proposition true or false; it includes, I think, everything in the world except what is simple.) The term "mental," therefore, will be applicable to all facts involving such relations as those enumerated above. This is not yet a definition, since obviously these relations all have some common characteristic, and it must be this characteristic which will yield the proper definition of the term "mental." But I do not know what this characteristic is.

Very truly yours,

B. RUSSELL.

TRINITY COLLEGE, CAMBRIDGE,
June 7, 1915.

Dr. Vida F. Moore, professor of philosophy and pedagogy at Elmira College, who died on June 11, was born at Steuben, Maine, the daughter of Captain Henry D. and Susan Kingsley Moore. After her graduation from Wesleyan in 1893 she became a professor of philosophy at Mount Holyoke College, where she remained until 1897, and in 1901 joined the Faculty of Elmira College. She received her Ph.D. from Cornell in 1900. Professor Moore was a trustee of the Steele Memorial Library at Elmira, and a member of the American Philosophical Association, the Daughters of the American Revolution, and the fraternity of Phi Beta Kappa. She was the author of "Ethical Aspect of Lotze's Metaphysics," and was a contributor to the *American Journal of Psychology*, the *Cyclopædia of Education*, and other publications.

The death has been announced of Dr. Stefan Witasek, director of the psychological laboratory at Gratz, at the age of forty-five years.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

RESPONSE AND COGNITION

II. COGNITION AS RESPONSE

WE have now a compact and, as I believe, a rather precise definition of behavior or, as it might be called, the relation of specific response. And we are in a position to compare it with the cognitive relation, the relation between the "psychological subject and its object of consciousness." Our aim would be to see how far those phenomena which we ordinarily attribute to "consciousness" may be intrinsically involved by this strictly objective and scientifically observable behavior.

Firstly, as to the object cognized, the "content of consciousness." It is obvious that the object of which an organism's behavior is a constant function corresponds with singular closeness to the object of which an organism is aware, or of which it is conscious. When one is conscious of a thing, one's movements are adjusted to it, and to precisely those features of it of which one is conscious. The two domains are conterminous. It is certain, too, that it is not generally the stimulus to which one is adjusted, or of which one is conscious: as such classic discussions as those about the inverted retinal image and single vision (from binocular stimulation) have shown us. Even when one is conscious of things that are not there, as in hallucination, one's body is adjusted to them as if they were there; and it behaves accordingly.¹ In some sense or other they are there; as in some sense there are objects in mirrored space. Of course the objects of one's consciousness, and of one's motor adjustments, may be past, present, or future: and similar temporally forward and backward functional relations are seen in many inorganic mechanisms. If it be thought that there can be consciousness without behavior, I would say that the doctrine of dynamogenesis, and indeed the doctrine of psychophysical parallelism itself, assert just the contrary. Of course muscle tonus and "motor set" are as much behavior as is the more extensive play of limb. In short, I know not what distinction can

¹ I have elsewhere tried to show (in the fifth essay of "The New Realism") that every type of subjective error has an analogue in the strictly physical realm.

be drawn between the object of consciousness and the object of behavior.

Again, if the object of which behavior is a constant function is the object of consciousness, *that function of it which behavior is* presents a close parallel to volition. Psychological theory has never quite succeeded in making will a content of knowledge in the same sense as sensation, perception, and thought; the heterogeneous (motor-image) theory being manifestly untrue to rather the larger part of will acts. Indeed, in the strict sense the theory of innervation feelings is the only one which ever allowed will to be, in its own right, a content. All other views, including the heterogeneous, show one's knowledge of one's own will acts to be gained by a combination of memory and the direct observation of what one's own *body is doing*. And this is quite in harmony with the idea that what one wills is that which one's body does (in attitude or overt act) toward the environment. In a larger sense, however, and with less deference to the tendencies of bead theorizing, one's volitions are obviously identical with that which one's body in the capacity of released mechanism *does*. If a man avoids draughts, that is both the behavior and the volition at once; and any motor-image, "fiat," or other account of it merely substitutes some subordinate aspect for that which is the immediate volition.²

The case is somewhat different if we enquire what in behavior corresponds to the "knower" of the cognitive relation. Clearly this knower can be nothing but the body itself; for behaviorism, the body is aware, the body acts. But this body will hardly take the place, in many minds, of that metaphysical "subject" which has been thought to be the very nucleolus of the ego. Yet something can be said for the neuro-muscular organism in the capacity of cognitive subject.³ In so far as the "subject" is supposed to serve as the center of perception and apperception and guarantor of the "unity" of consciousness, the central nervous system will serve admirably. In fact it is, precisely, a perdurable central exchange where messages from the outer world meet and react on one another and on "the so-to-say stored stimuli," and whence the return impulses emerge. Furthermore it is securely established that by just as much as this central nervous exchange has its unity impaired by just so much is the unity of apperception (including the "transcendental") impaired. Dissociation of neural complex means dissociation of personality, cognitive as well as volitional. Again, in so far as the metaphysical "subject" is defined as the "necessary correlate" of the object in knowledge, the body may well serve this function. For in the re-

² Cf. "The Concept of Consciousness," 1914, Chap. XIV.

³ We shall consider the soul as essence of personality further on.

sponse relation, as above defined, it does precisely this: without the body the outer object would obviously never become the *object* of behavior. And should otherwise the response relation turn out to be the cognitive relation, the physical organism will necessarily take its place as "correlate of the object," and supersede the metaphysical subject. I am not aware that this "subject" has ever served any other actually empirical wants, useful as it may be in the higher flights of speculation. And one recalls that of this more transcendental aspect of the "subject" James said, that "the 'Self of selves,' when carefully examined, is found to consist mainly of the collection of these peculiar motions in the head or between the head and throat."⁴ It will be recalled, too, that so faithful an idealist as Schopenhauer found reason to declare that "the philosophers who set up a *soul* as this metaphysical kernel, *i. e.*, an originally and essentially *knowing* being" have made a *false assertion*. For, he goes on to say, "knowing is a secondary function and conditioned by the organism, just like any other."⁵ I venture to predict that behaviorism will be able to give a complete account of cognition without invoking the services of the "metaphysical subject" nor of any one of its swarming progeny of Ego's.

We have seen that behavior, as "any process of release which is a function of factors external to the mechanism released," in so far accounts for the phenomena of cognition that it provides a content of knowledge, a willer, and a knower. Let us now consider it in respect to three remaining psychological phenomena: attention, feeling, and personality.

Attention is the most difficult of these topics, and the problem resolves itself, to my mind, the most neatly: this problem being, What in behavior would correspond to attention in cognition? Suppose, however, that we first ask, What in the attention of empirical psychology corresponds to "attention" as understood by the more or less still-current faculty and rational psychologies? These latter say that the "soul" is unitary, and that it "attends" to one "idea" at a time, or to a unified group of "ideas." It follows that there are "ideas" to which the soul is not attending; also, quite inevitably, that attention is the act of attending. *Bon!* On the empirical side we have attention as "the taking possession by the mind, in clear and vivid form, of one out of what seem several simultaneously possible objects or trains of thought."⁶ The essentials in this definition are

⁴ William James, "Principles of Psychology," Vol. I., page 301.

⁵ Schopenhauer, "The World as Will and Idea," Vol. II., Chap. XIX. (Eng. transl., 1886, Vol. II., page 462).

⁶ James, "Principles of Psychology," Vol. I., pages 403-4. In this definition James has summed up with singular brevity *all* the factors which have persistently maintained their place in the historical development of attention.

will, clearness or vividness (degrees of consciousness), selection (or its converse, inhibition). The volitional element in behavioristic attention will be, as we have already seen, the process whereby the *body* assumes and exercises an adjustment or motor set such that its activities are some function of an object; are focused on an object. The selection or inhibition factor has already been so unanimously explained in terms of neuro-muscular augmentation and inhibition that I need not dwell on it further. Clearness, vividness, or *degree of consciousness*, is the crux. And this is in fact what the faculty and rationalistic accounts of attention have come down to in empirical psychology.

It would be unfair to say that empirical psychology has now merely renamed attention, and called it "clearness." It has analyzed the faculty of "attention," and by separating out the factors (volitional, etc.) that belong elsewhere, it has found the core in "clearness," or, better, grades of consciousness. But I can not see that empirical psychology has done more than this. It teaches that there are degrees of being conscious; and this is a singular doctrine, for it goes much against the grain to say that an idea can be more or less conscious. From the nature of the case introspection can not help here,⁷ for one can not attend to an idea of any of the lesser grades of clearness, *idem est*, to an idea which is not attended to. The notion savors of Spencer's "Unknowable," of which he knew so much. In an acute discussion of this concept Barker says: "When it is said that clearness is a simple and undefinable attribute comparable with quality, intensity, extension, and duration, I simply do not find in the statement the description of anything which I can recognize in my own experience."⁸ I bring forward these considerations in order, not to disparage the "clearness" doctrine, but to show, if possible, exactly what it is that behaviorism must account for if it is to account for attention.

Now there are psychological phenomena which have seemed to argue for this notion of "clearness." The first is that ideas come into consciousness and go out of it, and that this process is often-times, apparently, not instantaneous. Ideas recede before they vanish, as objects recede in space: a sort of consciousness perspective. And this variation is not in the dimension of intensity. But this observable waxing and waning of ideas may be otherwise interpreted than as grades of consciousness. On the basis of a psychological

⁷ Certain introspective investigations to the contrary notwithstanding I recommend the reader to consult these. Cf. Titchener, "Lectures on the Elementary Psychology of Feeling and Attention," 1908, pages 211 *et seq.*

⁸ H. Barker, Proceedings of the Aristotelian Society, 1912-13, Vol. XIII., page 270.

atomism (otherwise an inevitable doctrine) this so-called "clearness" dimension would come down to the thesis that the atomic elements occur in groups of various degrees of organization; that the most coherently organized groups are the "clear" or "vivid" states (or ideas); that the elements, which themselves are either *in* or *not* in "consciousness," enter consciousness unorganized and are there built up into "clear" states; and that again these clear states more or less disintegrate before their component elements pass out of consciousness. It has always seemed to me that this view, which is of course not new, squares perfectly with the phenomena of fringe of consciousness; and with the intently observed fading of images. In this way "attention" would be reduced not to the "attribute of clearness," but to the process of organization and deorganization of content-atoms. I find nothing in Leibnitz, to whom the doctrine of clearness and obscurity in ideas owes so much, which would oppose this interpretation.

Now if attention is found to be such a process, then our view of behavior not merely allows for, but it *predicts* the attention process. Any complex form of behavior is, of course, organized out of simpler responses, which do not always slip into the higher form of integration instantaneously. Their more or less gradual organization is the process of attention. One sits down unguardedly in a public waiting-room, and presently one's train of thought is interrupted by "something," which changes almost instantly to "something I am sitting upon." This already has involved a very different motor attitude from that in force, while one was idly whiling the time away. At this juncture, if one brings the entire faculty of attention to bear on the "something," taking care, however, not to move one's body, for this would bring in a multitude of new peripheral data, I do not think that this "something" will gain in "clearness." It may, however, change to "extra pressure at a point on the under side of my thigh." Here, it seems to me, if one still does not move, all the "attention" possible will not make this pressure "clearer"; it is such an intensity of pressure, and there it is. Next, this pressure will probably change back to "something," and "something" will change to "pocket-book," "gold ring," "sticky piece of candy," "apple core," "soiled handkerchief"—each involving a new motor attitude; as one is soon convinced if "something" happens to change to "possibly a snake." If new peripheral data are admitted, of course the search for enhanced "clearness" in the originally given piece of content is even more complicated and dubious. The commonly alleged cases of increased "clearness" are cases of augmented sensory data (producing greater specificity of attitude); this is flagrantly so in the oft-cited transition of an object from peripheral to foveal vision. Here

the series may be "something," spot, gray spot, yellow-gray spot, yellow irregular spot, yellow sort of semi-circular thing, yellowish-orange dome-shaped object, orange dome-shaped bright object with irregularity at top, orange lamp-shade, lighted lamp with orange shade, on table. But this is not increased "clearness." Here, as before, the response attitude has steadily changed (and developed). I have tried for years to find a plausible instance of changing "clearness" or "vividness," and for evidence of "levels of attention"; but the search has been in vain.

According to the clearness doctrine, even when a content is built up to greater definition and detail (Leibnitz's "distinctness") by the addition of new components, the original elements ought presumably to gain in clearness. But the general tendency seems to be, rather, that they actually disappear. A first glance at an unfamiliar object usually yields salient features like color and form; under attentive observation the content develops into a thing of higher interest in which, unless there are special reasons wherefor they remain important, form and content are lost. An archeologist will soon lose ("pay no attention to") the color or mere contour of a new find which he is intently studying. A jeweler would probably remain conscious of the color of a new gem which he is examining; but here it should seem that this color, if it changes at all, does not gain "clearness," but a definite nuance; which is a very different matter. Interest, "*Aufgabe*" and "*Bewusstseinslage*" (which are the psychologist's names for motor set) determine what shall come or go, and how contents shall develop.

But not all psychologists interpret attention in terms of "clearness." This latter is an attribute of content, and there is a tendency in several independent quarters to assign to process, or some aspect of process, various phenomena which have been in the past referred to content. The interpretation of attention, not as "clearness," but as the organization process of psychic elements (as above described) is a familiar case in point. The "imageless thought" movement is another. Associationism described thought as the interaction of content units ("ideas"), while this theory describes it as interplay without content. Again the various groups of thinkers who employ the now-familiar *clichés* of "act," "*psychischer Akt*," and "*psychische Funktion*" are tending in the same direction; that is, toward emphasizing process of consciousness more than content. Now I should be far from arguing that there can be interplay without ideas as the basis of it. Such a thing seems to me untrue to fact, and in theory I can understand it no more than I can how there should be motion with nothing to move, or relation with no entities to be related. But I mention this tendency to emphasize process, only

in order to point out that however much of it shall turn out to be empirically valid, so much behaviorism will find no trouble in taking care of.⁹ For the responding mechanism presents any amount of process; all too much, indeed. For both content and process of cognition the specific response relation has a place.

A further aspect of attention remains unconsidered. This is attention at its lowest or "unconscious" stage. Even should attention generally be found to consist not in a clearness attribute, but in degrees of organization of content, there would still remain to be accounted for those facts which so persistently through the history of psychology have kept alive the distinction of conscious and unconscious, the latter being again distinct from "mere cerebration." This distinction, obscure and disputed and yet invincible as it has been, becomes luminously construed and wholly justified if cognition is identified with the behavior relation. With the establishment of the first specific response, out of the integration of reflexes, there is of course content (of an atomic, elementary order, very possibly). But this content could never be identified with brain, nor with cerebration: for it is that object or aspect of the *environment*, to which the brain reflexes are adjusted, of which they are now constant functions. What will happen, now, to these elementary objective contents when these primitive specific responses are still further integrated into more elaborate forms of behavior? They will obviously not turn into "cerebration," for they are aspects of the environment. Well, what in fact happens, in such a case, to consciousness? When one first learned to walk, the process involved lively consciousness of pressure on the soles, and at different intensities in the two feet; of visible objects which one carefully watched in order to steady oneself; etc., etc. One now walks with head in air and in almost total oblivion of the steadying visual objects and the unfeeling tactual objects with sharp corners, the stairs and the inclines, which it was once so wise to keep in view. At first one stepped, and each step was an adventure in itself; now one *walks*, or perhaps not consciously even this; for one may consciously not be walking or running, but catching a train, thinking over a lecture, bracing oneself to do a sharp stroke of business. The walking behavior, although no less behavior and no less involving functional adjustment toward the environment and hence no less involving "content," has now been taken up (along with other behavior systems) and made component of a more highly integrated and elaborate form of behavior. This latter it now serves. And the object or objective situation to which the latter is a functional adjustment is almost always more and more

⁹ Cf., in this connection, the brilliant work of N. Kostyleff, "Le Mécanisme cérébral de la pensée," Paris, 1914.

remote from the immediate momentary *stimuli* than are the objects of which the component systems are functions. For the behavior relation *all* of the environmental aspects to which the organism is in any wise responding are content; all are "in consciousness." But what portion of all this, then, is the "attentive consciousness," the upper level of personal awareness? Why, obviously, the upper level consists of that object or system of objects to which the *upper level* of integrated behavior is specifically adjusted. *The attentive level of consciousness, that of which the "self" is aware, is that most comprehensive environmental field to which the organism has so far attained (by integration) the capacity to respond.* The attentive level at any particular moment is the most comprehensive field to which the organism is at that moment specifically responding (of which its behavior is a function). All other aspects of the environment, to which the ancillary and component behavior systems are at the time responding are "co-conscious," "subconscious," "unconscious"—as you prefer; but they are not brain, nor cerebration, nor neurogramme. They are in consciousness, but not in the upper field of attention. In other words the most highly integrated behavior system that is in action determines the personal level of attention. If I stop "thinking about" (comprehensively responding to) the forthcoming business engagement to which my legs are now carrying me, I can consciously walk; if I cease this, I can *consciously* take a single step; ceasing this I can *consciously* merely equilibrate in an erect posture; ceasing this I become *conscious* of pressure on the soles of my two feet. The one change in this series has been the steady reduction in the comprehensiveness of my bodily response. The "stream of consciousness" is nothing but this selected procession of environmental aspects to which the body's ever-varying motor adjustments are directed.¹⁰

This explains, as no other view has ever explained, the relation of automatic or habitual, to conscious activities. Habitual activities are usually performed below the attentive level, because as soon as any behavior system is organized ("learned") the organism *goes on* to integrate this, together with others, into some more comprehensive system; and concomitantly the first mentioned system sinks into the field of the co-conscious or unconscious. This is the purpose of education, the meaning of development. On the other hand, there seems to be no, even the most simple and habitual, activity that can not, and, on occasion, is not, performed *consciously*. What the organism shall be aware of depends solely on what it is doing; and it can do anything which it ever learned to do, whether complex or

¹⁰ I shall attempt at any early date to show how successfully this view replaces the association doctrine.

simple. The remarkable harmony between this view and the facts is brought out if one turns to the other views. One theory, for instance, has it that the cerebral cortex is the "seat of consciousness," while habituated unconscious acts are done by the cerebellum and cord. From which it follows that when a motion is first learned (for this appears to be always a conscious process) it is learned by the cerebrum, but thereafter it is performed by the cerebellum and cord (which never learned it). A most plausible conception! And thereafter, since it can be performed either consciously or unconsciously, a double set of nervous mechanisms is maintained in readiness! Or again, there is a view that "consciousness" is comparable to resistance, or heat, developed at neural cell or synapse. Unconsciousness in a process is attained when the neural path is worn so "smooth" that no appreciable heat is developed.¹¹ When, then, an act has once become automatic it *can not* be performed consciously, unless the organism relearns it in a new set of nerves. This patently violates the facts.¹²

Lastly, in leaving this view of the attentive level and the co-conscious levels, I must drop the hint that it will be found to throw a flood of light on the otherwise Cimmerian darkness that now surrounds "unconscious sensations," "unconscious judgments," and "illusions of judgment"; not to mention more modern categories such as "*Aufgabe*," "*Bewusstseinslage*," Freud's upper and lower "instances," and double personality with all its allied problems. Nothing could be more inspiring to a believer in the purely objective psychology, if dejected, than to read in the light of our definition of behavior, what Weber, for instance, had to say about "*stellvertretender Verstand*,"¹³ or again Euler, Helmholtz, Hering, or Mach about "unconscious judgments"; such vistas of unforced and lucid explanation are here opened out.

Another phenomenon that seems to be more or less universally involved with cognition is feeling, and our question is whether the behavior relation makes such a phenomenon intelligible. Here, again, psychology is not very clear as to how the phenomenon is to be described. The early view that feelings are two content elements—pleasantness and unpleasantness—gave way first to the idea that feelings are two opposed attributes of content, making one distinct dimension comparable with intensity (the "feeling-tone" theory). Then more recently there has been a marked tendency (which

¹¹ This view, or some variation of it, has been advocated by Spencer, Romanes, Mercier, Wm. McDougall, and others.

¹² Cf. E. B. Holt, "The Concept of Consciousness," 1914, page 324, *et seq.*

¹³ E. H. Weber, "Der Tastsinn und das Gemeingefühl," 1846, in Wagner's "Handwörterbuch der Physiologie," Bd. 1, S. 484, *et seq.*

was indeed adumbrated much earlier), as in the case of attention, to refer the phenomenon to process rather than to content, because it seems certain that pleasantness is essentially connected with enhanced, unpleasantness with diminished, consciousness and activity. Some degree of avoidance inevitably attends the unpleasant, and so forth; and on the other hand, it seems impossible to lay hold of any distinct pleasantness or unpleasantness "content."¹⁴

One thing, which from the behavioristic point of view seems obvious, is that feeling is some modification of response which is determined by factors *within* the organism. No dependable and direct correspondence between feeling phenomena and the environment appears. This fact was noted extremely early, and has indeed often served as a clinching argument for the subjectivist point of view. But if one considers what the organism is—a vast *congerie* of microscopic cells, and each one a chemical process which is practically never in exact equilibrium, whose very use, indeed, involves a disturbance of any even relative equilibrium, where, further, the whole is at every moment both absorbing and disbursing energy of several kinds—then it becomes downright unthinkable that in any behavior which such an organism succeeds in evolving, the constant functions which this is of objects in the environment *should not* be further complicated by variant factors contained in the mechanisms which are maintaining these functions; just as the constant of gravity is complicated by skin-friction, wind, and other forces which act on falling bodies. The phenomena of "feeling" is predictable from our definition of behavior and a rudimentary acquaintance with living tissue. Where in the organism the feeling process is to be sought, or in which aspect of neuro-muscular interplay, can not, I think, be advisedly enquired until the phenomenon has been more exactly *described*. Meanwhile behaviorism is embarrassed, not by the difficulty of explaining feeling, but by the very wealth of alternative which it finds at its disposal. It can well afford to wait until psychologists get something that at least resembles a scientific description of that which they call "feeling." Meanwhile the closer they have come to anything exact, the nearer they have come to the position above outlined. Such a theory as that of Meyer¹⁵ is straight behaviorism.

¹⁴ The only recent theory which I know, that of Titchener, which definitely makes feeling a content, at the same time declares it to lack the "attribute of clearness"; while other psychologists, as Münsterberg, declare that a content which lacks this attribute *ipso facto* ceases to exist. Wundt's tri-dimensional theory appears to make feeling either a kinesthetic *sensation*, or else a function thereof (*i. e.*, not a content, but a *process*).

¹⁵ M. Meyer, "The Nervous Correlate of Pleasantness and Unpleasantness," *Psychol. Rev.* 1908, XV., pages 201-216; 292-322.

It is interesting to note that if, according to our definition of behavior, feeling is a complication that the organism as such introduces in the function which behavior is of the environment, we see immediately why feeling is not unrelated to stimulus and why it is closely related to will. Feelings are more or less, but *never infallibly*, determined by the stimuli. If one gives simultaneously two "incongruous" stimuli, the organism commonly "feels unpleasantness," which is due, if appearances are not deceptive, to the interferences which each stimulus exerts on the response which the other alone would have called forth. Introspectively one says, "Those two things do not harmonize, they conflict," or in observing another organism one says, "Its responses are impeded." Now it is *within* the organism that these stimuli interfere, and only by reason of the existence and idiosyncrasies of the organism that they do interfere. Thus feeling is a complication of response due to factors within the organism. It is now clear why "feeling" is not found in the evolutionary series lower than where "behavior" is found. As the subjectivist is so fond of saying, "None but a 'conscious' creature can feel." 'Tis true.

And again, if feeling is an internally determined modification of the behavior function and this latter, as previously explained, is the will, it is clear enough why feeling and will are bound to be concomitant phenomena. And whatever empirical truth there may be in the "pleasure-pain theory" of will will find ample recognition and explanation in this fact. It shows, too, why will is possible without feeling, while feeling is not possible without will.¹⁶ And once again, if will is behavior that is function of an object, and feeling is an *ex machina* "Nuancirung" of this function, while the "content of consciousness" is the outer *object* to which the behavior function is directed, one sees how a confusion might arise as to whether feeling was a "Nuancirung" of the motor attitude or of the object of that attitude. That such a confusion is prevalent is shown by James in his essay, "The Place of Affectional Facts in a World of Pure Experience."¹⁷

We come, lastly, to what is called "personality" and the behavior relation. I have already pointed out that for behaviorism, will is that function which the organism's behavior is of the object. These various functions are of different degrees of integration, and

¹⁶ A disputed point, of course. I believe that the facts (and an adequate conception of the will) quite support my statement. In such a word as "apathetic," which should refer to feeling alone, the notion of feeling has been actually superseded by that of will.

¹⁷ This JOURNAL, Vol. II., pages 281-287. And "pathetic" has thus come to refer to the object, the situation.

in a well-knit character they have become organized (as fast as each developed) with one another into higher forms of behavior, and if this process has not been thwarted by untoward circumstance, they are at every period of life integrated to date. That is to say, there is at any moment of life *some* course of action (behavior) which enlists *all* of the capacities of the organism: this is phrased voluntarily as "some interest or aim to which a man devotes all his powers," to which "his whole being is consecrated." This matter of the unthwarted lifelong progress of behavior integration is of profound importance, for it is the transition from behavior to conduct, and to *moral conduct*. The more integrated behavior is harmonious and consistent behavior toward a larger and more comprehensive situation, toward a bigger section of the universe; it is lucidity and breadth of purpose. And it is wonderful to observe how with every step in this process, the bare scientific *description* of *what the organism does* approaches more and more to a description of moral conduct. In short, all of the more embracing behavior formulæ (functions) are moral. The behaviorist has not changed his strictly empirical, objective procedure one iota, and he has scientifically observed the evolution of reflex process into morality. The reader shall illustrate this for himself. Take *any* instance of wrong conduct as, say, a child's playing with fire, and consider why it is wrong and how must it change to become right. It is wrong simply because it is behavior that does not take into account consequences; it is not adjusted to *enough* of the environment; it will be made right by an enlargement of its scope and reach. This is just what the integration of specific responses effects; and through it, as I have remarked previously, the immediate stimulus (ever the bugbear of moralists) recedes further and further from view.

The entire psychology of Freud is a discussion of the miscarriages which occur in this lifelong process of integration, their causes and remedies. Freud, believes, and seems to have proven, that thwarted integration (called by some "dissociation") is responsible for a large part of mental and nervous disease. For Freud's "wish" is precisely that thing which in my definition of behavior I call "function"; it is that motor set of the organism which, if opposed by other motor sets, is functional attitude toward the environment, and which, if unopposed, actuates the organism to overt behavior which is a constant function of the environment.¹⁸ The evil resulting from thwarted integration is "suppression," where one motor set becomes organically opposed to another, the two are dissociated and the personality is split: whereas the two should have been har-

¹⁸ The reader will find a fuller account of this view of will, morals, and function in my chapter on Volition in "The Concept of Consciousness."

moniously knit together, cooperating to produce behavior which is yet more far-reachingly adapted to the environment. The sane man is the man who (however limited the scope of his behavior) has no such suppression incorporated in him. The wise man must be sane, and must have scope as well.

A further and important conclusion which I believe has not yet been drawn, but which follows necessarily from Freud's behavioristic psychology (for such it is), is that only the sane man is good and only the sane man is free. For the man with suppressions is capable of no act which some part of his own nature does not oppose, and none which this now suppressed part will not probably some day in overt act undo. There is no course of action into which he can throw his whole energy, nothing which he can "wish" to do which he does not wish, to some extent and at the same time, not to do. Thus he can never do the "good" unreservedly, never without secret rebellion "in his heart." And such a man is not good. In the same way he is never free, for all that he would do is hindered, and usually, in fact, frustrated, by his own other self. This fact, so brief in the statement, has been copiously illustrated by Freud and is extraordinarily illuminating to one who is trying to observe and to understand human conduct at large. One soon sees that in the most literal sense there is no impediment to man's freedom except a self-contained and internal one. In thus showing that virtue and freedom derive from the same source Freud and behaviorism have empirically confirmed that doctrine of freedom which Socrates and Plato propounded, and which even religion has deemed too exalted for human nature's daily food—the doctrine that only the good man is free.¹⁹

Such for behaviorism is the personality or the soul. It is the attitude and conduct, *idem est*, the purposes, of the body. In those happy individuals in whom the daily integration of behavior is successfully accomplished, the soul is a unit and a moral unit. In others in whom the integration has been frustrated the soul is not a unit, but a collection of warring factions seated in one distracted body. Such a creature has not one soul, but many, and misses of morals and of freedom by exactly as much as it has missed of unity, that is, of the progressive integration of its behavior. According to this view the soul is not substantial and not corporeal; but it is concrete, definite, empirically observable, and in a living body incorporated—a true "entelechy." With such a doctrine of personality and the soul as this, behaviorism can rest unperturbed while the sad procession of Spirits, Ghost-Souls, "transcendental" Egos, and what not, passes by and vanishes in its own vapor. For all of

¹⁹ Freud's verification of this is far more complete than in my brief outline.

these are contentless monads, and they have no windows. In fine, for behaviorism there is one unbroken integration series from reflex action, to behavior, conduct, moral conduct, and the unified soul.

In the first part of this article I expressed the opinion that behaviorists have not fully realized the significance of what they are doing because, while in practise they have discarded it, in theory they still, like most psychologists, adhere to the "bead theory" of causation. Now their opponents, who believe in "consciousness" and a subjective soul-principle, are equally addicted to another view of causation, the teleological. This view, however, which indeed does justice to a feature of causation which the bead theory ignores, is equally wide of the truth. The functional view combines and reconciles the two, and accounts for "teleology." This is why the behaviorist who, whatever his theory, *practises* the functional view, finds in his phenomena no residue of unexplained "teleological" behavior. For brevity I must let a single illustration suffice to show this. Why does a boy go fishing? The bead theory says, because of something in his "previous state." The teleological theory says, because of an "idea of end" in his "mind" (subjective categories). The functional theory says, because the behavior of the growing organism is so far integrated as to respond specifically to such an environmental object as fish in the pond. It, too, admits that the boy's "thought" (content) is the fish. But now a mere attitude or motor set could condition the same "idea of end"—the fish—and it need go no further; so that the "idea of end" has no causal efficacy whatsoever. This latter is supplied by that further influx of nervous energy which touches off the motor set and makes it go over into overt behavior. The whole truth of teleology is taken up, and rectified, in that objective reference which behavior as *function of an object* provides for. It is to be empirically noted otherwise that the "idea of end" is totally inefficacious causally, for *more often than not* it is merely an *idée fixe*, which indicates the presence of an habitually aimless and irresolute will.

III. CONCLUSION

In the foregoing pages I have offered what I believe to be a somewhat more exact definition of behavior or specific response than any that I have previously met, and have attempted to show that this behavior relation, objective and definite as it is, can lay considerable claim to being the long-sought cognitive relation between "subject" and object. For my own part I make no doubt that the cognitive relation is this, although my definition of behavior may have to be overhauled and improved in the light of future empirical discoveries. It follows that I believe the future of psychology, human as

well as animal, to lie in the hands of the behaviorists and of those who may decide to join them. I wish to add a word on the pragmatic aspect of the objective movement in psychology and philosophy.

So far as modern philosophy goes it seems to me that the several present-day tendencies to resolve the subjective category of soul-substance into objective relations, all take their origin in the contentions of the eighteenth-century materialists. In this the writings of the French and English ideologists, sensationalists, and other empiricists (including such naturalists as Charles Bonnet) have not been without influence. One might even find, for instance, a behaviorist's charter in the following words of Joseph Priestley: "I can not imagine that a human body, completely organized, and having life, would want sensation and thought. This I suppose to follow, *of course*, as much as the circulation of the blood follows respiration."²⁰

In the actual present this objective tendency is represented by groups of men whose interests are otherwise so divergent that it may not be amiss to point out their fundamental unanimity of aim. There are at least four such groups—the American realists, the English realists, the French and Russian "objective" psychologists, and the "behaviorists." I think that it would not be difficult to persuade the Freudians that they, too, are objectivists—a fifth group. Possibly the Pragmatists would be another. And I should have mentioned Radical Empiricists at the top of the list if I detected the existence of any such group.

The American realists have been so explicitly conscious of their aim to abolish the subjective ("consciousness," etc.) and to interpret mental phenomena in an objective relational manner, and they have written so often in this very JOURNAL, that I need say nothing further. It would be unjust of me, without very careful study, to attempt to weigh the individual contributions of these realists, but I must say in passing that in the early, very lean and hungry years of American realism, yeoman's service was rendered by Professors Woodbridge and Montague. At the present time all of these realists, for their number is no longer merely "Six," seem definitely to have escaped the "ego-centric predicament" and to have repudiated the "subjective, as such." It seems to me that they stand in need of a positive theory of cognition, and that they will find this if they will consider the ways of the patient animal-behaviorist. Cognition exists in the animals, and there in its simpler and more analyzable forms.

²⁰ "Disquisitions Relating to Matter and Spirit," 2d edition, 1782, Vol. I., section XIII., page 151.

The English "realists" are all, so far as I can see, Cartesian dualists of one complexion or another. But they are all, or nearly all, animated by the desire to be released from the bondage of subjectivism. In so far they have a common aim with the American realists, and might find it worth while to examine cognition in its infra-human forms.

The Russian and French objective psychologists are determined, just as James has urged and as the behaviorist is doing, to abandon the ghost-soul. They are further determined to discover all the phenomena of consciousness in some or other reflex processes. If they succeed, theirs is clearly bound to be a relational theory of consciousness. And they are thus the natural allies of all realists.

The behaviorists themselves are, as I have said, *in practise* the one great luminary of the psychologic sky. In theory they need, I think, as in this present paper I have tried to outline, an exact definition of what behavior is. They are to-day in danger of making the materialist's error, of denying the *facts*, as well as the theory, of consciousness. Thus Bethe, in his fascinating book "Dürfen wir den Ameisen und Bienen psychische Qualitäten zuschreiben?"²¹ describes much of the complex behavior of ants and bees exactly (and in the sense which I have previously commended), but then adds that, *since* we can explain all these phenomena in terms of reflex process, we have no right to "impute consciousness" to these little creatures. He fails to see that he has been describing consciousness. This method, pursued, would end by picking out the single reflex components of human behavior, neglecting the equally important relations in which they are organized, and by then concluding that there is no such thing as sensation, perception, or thought. Just as one might accurately describe each wheel of a watch, and then conclude that it is not a timepiece; "time" not being visible in any one of the wheels. But this would be to miss altogether that novelty which arises during the integration of reflex process into behavior. As I have tried to show, behaviorism is neither subjectivism, nor, on the other hand, is it materialism (in the accepted sense of that term—the sense, that is, in which the facts of consciousness are slurred over or even repudiated outright).

As to the others, it is my belief that both the Freudians and the pragmatists will find a number of baffling points in their own systems explained, and these systems extended and fortified, if they will consider whether cognition *for them* is not essentially contained within the behavior relation.²² That this is true for Freudianism I shall attempt to demonstrate in the near future.

²¹ Bonn, 1898.

²² I would commend to them Professor John B. Watson's valiant and clear-

In fine, it should seem that a fundamental unity of purpose animates the investigators of these several groups, although they approach the question of cognition from very different directions. Will it not be a source of strength for all if they can manage to keep a sympathetic eye on the methods and the discoveries of one another?

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WILLIAM JAMES AND IMMORTALITY

THE admiration felt for the great American psychologist and philosopher, William James, is tempered in many by the belief that he was too credulous. He is often supposed to have swallowed whole the conclusions of the more hare-brained of the psychical researchers. Nothing could be more false. Among the half dozen men in the front rank of that society he offers a conspicuous example of perfect candor and open-mindedness, and yet keeps his critical sense and the wider philosophical outlook while his associates one after the other pass over to the camp of the believers in spirit existence. It is his readiness to give every hypothesis a chance, and his generous toleration of the opinions of others that have led to this misunderstanding. Fortunately he has put himself on record clearly and frequently enough to make any protracted misinterpretation impossible.

In the "Confidences of a Psychical Researcher"¹ he wrote only two years before his death, "I am baffled as to the spirit return"; and gave a verdict of *not proven*. His last statement in print regarding survival after death occurs, I think, in a long report of certain sittings in which Richard Hodgson, for many years the secretary and chief manager of the society; appears as an alleged communicator. Hodgson had often said that if the medium, Mrs. Piper, were still in the body when he died, he would not fail to provide his friends, through her, with convincing evidence of his survival. A few months after his death an alleged spirit calling himself Hodgson appeared at sittings which William James was holding with Mrs. Piper, with the intention, I believe, of giving his friend Hodgson a chance to fulfil his promise. In the report of these sittings James says, "I therefore repeat that if ever our growing familiarity with these phenomena should tend more and more to corroborate the hypothesis that 'spirits' play some part in their production, I shall headed volume "Behavior" (New York, 1914); also Professor Wm. McDougall's very instructive "Social Psychology" (London, 1914), though this with more reserve since it is not untainted with subjectivism.

¹ *American Magazine*, 1909.

be quite ready to undeafen my ears and to revoke the negative conclusions of this limited report."²

Not only did James disbelieve in spiritism, he was also relatively indifferent to the preservation of personal identity after death. It is, I think, generally true, and, if true, noteworthy that the greater the individual, the readier he is to surrender his identity and the abler he is to find satisfaction in the thought of continuation in another than a personal form.

James's inability to accept the theory of the soul—the rejection of which involves either complete annihilation at death or at least the loss of personal identity—dates back to his first and greatest work, "The Principles of Psychology." The venerable doctrine of the soul, *i. e.*, of a substantial, simple, permanent essence in which our thoughts, feelings, volitions inhere, a doctrine accepted by most modern philosophers until Hume, does not, according to him, "strictly explain anything."³ He was never able to find any use for the soul theory, and in his persistent efforts to come to a more definite and satisfactory understanding of the relation of individual consciousness to the body and to a possible wider superhuman consciousness, he continued to the end to condemn that theory. In "A Pluralistic Universe," he tells us that "it is not for idle or fantastic reasons that the notion of the substantial soul, so freely used by common men and the more popular philosophers, has fallen upon such evil days and has no prestige in the eyes of critical thinkers. . . . To sincere inquirers they (the soul and notions of the same sort) appear as little more than names masquerading. . . . Souls have worn out both themselves and their welcome, that is the plain truth."⁴

These two negations—no soul, and the loss of personal identity after death—were early established in the mind of the American philosopher and never afterwards given up. And yet he was far from believing that death ends all. Almost as early as his denial of a soul, one finds him surmising, if not affirming, that although man does not preserve his identity beyond death, he becomes in some way an immortal partaker in a superhuman consciousness. The idea of a "sea of consciousness" in which we are somehow plunged, was one of James's fundamental beliefs, or rather, to use his own term, overbeliefs. It is set forth in his Ingersoll lecture on "Human Immortality," delivered in 1898. In that address he strives to show the plausibility of a theory which should regard the brain not as a productive, but merely as a transmissive organ. Our thoughts, feelings, and volitions would then come to us from an extra-human reservoir. Each individual would be but a ray of a great light, the only ray

² *Proc. Soc. Psy. Res.*, 1909, Vol. XXIII., page 29.

³ "Principles," Vol. I., page 182.

⁴ *Loc. cit.*, pages 209-210.

which his brain let pass and the only ray visible to him. "The body would thus be not the cause of our thinking, but merely a condition restrictive thereof, and although essential to our sensuous and animal consciousness, an impeder of our pure spiritual life" (pp. 28-29). This theory seems to him to fit better a large class of "facts": telepathy, clairvoyance, premonition, apparition at the time of death, conversion, etc.

"The Varieties of Religious Experience," was undertaken, not as a general systematic study of religious life, but primarily in order to find in certain religious experiences facts which would support this same theory of a vast trans-human consciousness with which man is or may occasionally be in dynamic relation. He clung to this idea to the last. The clearest and most definite of his utterances on this point is probably the one in the article of the *American Magazine*, already quoted, and reprinted in 1911 in a posthumous volume called "Memories and Studies," under the title, "Final Impressions of a Psychical Researcher." "Out of my experience, such as it is (and it is limited enough), one fixed conclusion dogmatically emerges, and that is this, that we with our lives are like islands in the sea, or like trees in the forest. The maple and the pine may whisper to each other with their leaves, and Conanicut and Newport hear each other's foghorns. But the trees also commingle their roots in the darkness underground, and the islands also hang together through the ocean's bottom. Just so there is a continuum of cosmic consciousness against which our individuality builds but accidental fences, and into which our several minds plunge as into a mother-sea or reservoir. Our 'normal' consciousness is circumscribed for adaptation to our external earthly environment, but the fence is weak in spots, and fitful influences from beyond leak in, showing the otherwise unverifiable common connection" (p. 204).

Let not this superhuman consciousness be taken as identical with the absolute mind of the Hegelian and other monists. There is, according to James, not only one, but many seas of consciousness. He did not pretend to know "the number of functionally distinct 'selves' this universe comports," but he firmly disagreed with the cardinal tenet of the dominant philosophical school, the idealistic monists, that the universe is to be conceived as one absolute mind. He was an idealistic pluralist: "however much may be collected, however much may report itself as present at any effective center of consciousness or action, something else is self-governed and absent and unreduced to unity."⁵

It was James's conviction that the drift of all the evidence we have "seems to sweep us very strongly" toward some such pluralistic

⁵ "Pluralistic Universe," page 310.

belief. He found his most compelling facts among the phenomena investigated by the Society for Psychical Research, and in religious life. These facts, he thought, "establish, when taken together, a decidedly *formidable* probability" in its favor. It is well to remember in this connection that he always described himself as an empiricist; he had the scientist's regard for concrete experience. In his last years he was never weary of taunting, good-naturedly yet pointedly, the German and English philosophers of the absolute with their disregard of concrete reality. In one of his Hibbert lectures he contrasted the "thinness" of the philosophy of the absolute mind with the "thickness" and fullness of Fechner's philosophy, which he held in high esteem.

It can not, however, be said that he was successful in his search in the religious life for facts supporting his hypothesis. I have attempted to show elsewhere that in this respect he met with complete failure, *i. e.*, he did not succeed in singling out from among religious experiences a class which by their specific characteristics point to a superhuman influence. I do not know whether he ever admitted this failure. In any case, whatever comfort or disappointment the investigation of religious life may have been to him, he seems to have entertained to the last the opinion that the sort of phenomena in which psychical researchers are interested might yield the proof, the scientific proof, of the truth of his hypothesis. In the Hodgson-Piper Report, already mentioned, he puts down among the possibilities to be considered when attempting to explain Mrs. Piper's utterances, "access to some cosmic reservoir, where the memory of all mundane facts is stored and grouped around personal centers of association."

The idea of a trans-human consciousness received at the hand of James a fuller development, and acquired a much wider significance than belong to it when regarded merely with reference to the destiny of man. The hypothesis became a key with which the genius of the American philosopher endeavored persistently to decipher the mysteries of earthly life, and in particular the origin and nature of human consciousness and its relation to the bodily organism. Had he lived long enough, this conception would probably have become a leading feature in a system of philosophy.

If he disappointed the more ardent researchers by his verdict of "not proven" regarding spirit return, every one of them heard with rising enthusiasm his last pronouncement that the surface of the facts called "psychic" had merely "begun to be scratched," and that through following these facts "the greatest scientific conquests of the coming generation" would be achieved.⁶ I have already made it clear that James did not expect nor desire this conquest to take

⁶ "Memories and Studies," "Final Impressions," page 206.

the form of a demonstration of survival of human personality. Not that he was unwilling to admit that possibility. He held that "if the belief in the soul ever does come to life after the many funeral discourses which Humeian and Kantian critics have preached over it," it would "be only when some one has found in the term a pragmatic significance that has hitherto eluded observation."

This last statement leads me to make some remarks upon the effects which a certain aspect of the communications from alleged spirits is likely to have upon the desire for immortality, and therefore upon the search for a proof of its truth. Every one who has delved into the Reports of the Society for Psychic Research, both English and American, has been surprised, and if not too seriously disappointed, amused at the puerility of the communications reported to come from the other world. Nothing of any significance has transpired, not even through those deceased persons from whom much would have been expected, namely, Frederick Myers, Richard Hodgson, and William James.

From Richard Hodgson nothing whatever enlightening has been learned, despite his haste in giving sign of his existence. He had hardly been dead eight days when he began to speak through Mrs. Piper, and for several years following she scarcely held a sitting without some manifestation of what professed to be Hodgson's spirit. I am not concerned here with what in these messages may be evidential of the continued existence of the former secretary of the Society for Psychic Research, but only with the information they provide upon the other life. He talks abundantly of trifling incidents, a hat that blew off, smoking certain cigars, jokes, etc., etc. All this or some of it may be useful or necessary in order to establish his identity, but why is there nothing else, not even when he is asked *point-blank* and repeatedly to tell something of the life he is leading? When questioned about that, he either makes what seems to us, with our exalted expectations, ridiculous statements or he excuses himself clumsily and departs. Frederick Myers was just as disappointing as Hodgson.

When William James's turn came to pass into the other world and to reach his friends through mediums, he did not do better than his predecessors. It is Hodgson, by the way, who likened the difficulties of spirit communication to those of two distant persons on this earth who have only dead-drunk servants to act as their messengers.

Various theories have been proposed in order to account for the disconcerting character of spirit communications. It has been said, for instance, that the spirits find it difficult to work with the muscular mechanism of the medium. It may be that death, which sepa-

rates soul and body, leaves the soul inefficient in this matter of bodily control. "A discarnate soul," we are told by Dr. Hyslop, may have "to learn all over again to control a living organism. The difficulty, no doubt, is greater from the fact that it is not his own organism and also the fact that the soul of its possessor is not eliminated."⁷

From the difficulty the spirits' experience in controlling the muscular mechanism of the person, through whom they write or speak, arises possibly a further handicap. "The intense occupation of the mind on this work will use the energy for the purely mechanical part of the communication, and leave little for the mind to do in recalling specific facts. . . . The communicator seems to be between the devil and the deep sea. When recalling incidents, he can not control, and when controlling, he can not recall."⁸ Believers in spiritism will certainly sympathize with the sorry plights of the devoted spirits who try to help us believe in immortality. When one has admitted that they encounter difficulties in their efforts to communicate, there remains, nevertheless, the fact that *they do communicate a great many things*. It takes volumes to record their utterances! The difficulties are apparently such that *nothing concerning the other life, and only things that have taken place on this earth can pass through*. Do the explanatory hypotheses I have mentioned account for this? Not in the slightest. One may note in passing that the limitations of the knowledge of the alleged spirits to earthly facts is highly significant of the origin of the mediums' information.

The dream or trance-state theory has also been urged in explanation of many puzzling features of the messages. It seems reasonable to admit that the spirits are for a period following death in an abnormal mental condition. If this be the case, they should after a while recover. Yet they never seem to do so. Dr. Hyslop has recently found, in the character of certain spirit communications, facts damaging to the trance hypothesis. With the assistance of three notable spirits, Hodgson, James, and Pelham, communicating through Mrs. Chenoweth, he produced an interesting hypothesis which makes the medium the source of many of the troublesome features in the messages for which in the trance-hypothesis the spirit himself is held responsible. In Dr. Hyslop's theory the medium is supposed to apprehend not only those thoughts and feelings which the spirit would express if he could speak, but *everything* that is in his mind. We all know that, in addition to what we say there is a great deal in our minds which we carefully refrain from uttering. If now the medium becomes aware of the whole consciousness of the spirit, and not only of

⁷ James H. Hyslop, "Psychical Research and Survival," The Quest Series, 1913, page 129.

⁸ *Loc. cit.*, page 131.

those selected parts of it to which the spirit would give utterance at any particular time, what is the medium going to express? No wonder she gets confused, contradicts herself, speaks irrelevantly, etc.! "The communicator may be perfectly clear in his thoughts and memory, but if the whole mass of his mental state is transmitted to the control of the psychic, the selection of the right incidents will depend on the judgment and intelligence, or the abilities of the control."⁹ The idea is clever. Unfortunately, it does not account for the fact with which we are concerned here, for if there is in the mind of the spirit something else than the earthly trifles reported to us, why does not the medium occasionally choose for expression some of these other things? Why, when she knows that the sitter seeks information on things above, does she not select that in the communicator's consciousness which would gratify the sitter's curiosity? I know of no other acceptable explanation of this failure than that the consciousnesses open to the medium contain *only* earthly trifles.

I have taken up and commented upon this aspect of alleged spirit messages because it is one of the important outcomes of psychic research, a result important in its bearing upon the origin of that which comes through the medium, and important in its effects upon man's interest and belief in immortality. If we are doomed to a future such as these spirit messages reveal, how many of us would continue to desire immortality? The modern belief in immortality is a creation of desire: make immortality undesirable and most men will not only cease to be interested in the proof of it, but many will undertake the demonstration of its non-existence.

There are even fastidious natures which shrink from holding communications with their departed friends through such means as mediums. Stanley Hall thinks it is vulgar, that we dishonor our immortal parts by such intercourse. And Andrew Lang, who quotes President Hall, adds "nothing could induce me to intrude on the denizen of the next world through the agency of Mrs. Piper (whom I have never met) or any other 'entranced' medium."¹⁰ How men differ, or rather, in this case, how much they think they differ!

The present outcome of the attempt to prove personal immortality by a scientific method can not be other than to decrease interest in it, or, at least, in the methods of inquiry followed by the researchers. The sort of immortality they describe and offer as a possibility disappoints the very needs which have given rise to the belief.

When considering the immortality which James would substitute for personal continuation, we must not forget that the only immortality in which men in general have a serious concern is personal

⁹ *Loc. cit.*, page 126.

¹⁰ *Proc. Soc. Psy. Res.*, 1911, Vol. XXV., page 91.

immortality. Christianity asks for and knows no other; "we are not interested in the everlastingness of the eternal 'mother-sea,' call it God or call it what we will, unless we include in it the sum of all our enduring distinct personalities." William James himself admits that which "we all wish to keep is just these individual restrictions, these selfsame tendencies and particularities that define us to ourselves and to others and constitute our identity."¹¹ If his faith venture is not for personal immortality, it is because in spite of the desire just quoted he prefers, for logical and pragmatic reasons, the belief I have defined.

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REVIEWS AND ABSTRACTS OF LITERATURE

William James and Henri Bergson. H. M. KALLEN. Chicago: University of Chicago Press. 1914. Pp. x+248.

If there are still any students of philosophy who suppose that the speculative thought of James and Bergson is reducible, fundamentally, to pretty much the same kind of thing, Dr. Kallen's "William James and Henri Bergson" might be a good book to put into their hands. The cardinal contention of Dr. Kallen's book is that Monsieur Bergson, though agreeing with James in the belief that immediate experience is fluid in character and that logic and reality are incommensurable, differs from him essentially, inasmuch as Monsieur Bergson attempts to set up one of the many sorts of experience, out of which the world is composed, as the consecrated "reality" of the appearance-and-reality philosophers; whereas James insists that things are really whatever we experience them as, and that no one of them can be the real substance of the world, since the world has no other substance than the sum of its experienced parts. In this respect, principally, Dr. Kallen finds Monsieur Bergson a traditional philosopher, quite unlike William James, whom he regards as an interrupter of the philosophical tradition.

In elaborating what he means by calling Monsieur Bergson a traditional philosopher in this sense, Dr. Kallen explains his views of the history of philosophy. All philosophers, he thinks, precedent to William James, have more or less arbitrarily dwelt on certain items of human experience to the disadvantage of the rest, and have made use of the enhanced reputation of their favorite varieties of experience to undermine the metaphysical status of the world's objectionable parts; identifying, de-realizing, transposing, disparaging, until at last, by the mere shuffling about of the terms of philosophy's discourse, the obstacles to the unity of the world, and to God, and freedom, and immortality, had been, one or more of them, as the case might be, speculatively suppressed.

Another ground on which Monsieur Bergson is charged with being

¹¹ "Human Immortality," page 29.

less of an iconoclast than he is commonly taken to be, is that he agrees with all other philosophers except William James, according to Dr. Kallen, in epistemologically identifying knowing with what is known.

When he summarizes the philosophy of James Dr. Kallen writes with the unexceptionable authority of a thoroughly faithful disciple, and in describing Monsieur Bergson's philosophy he gives what Monsieur Bergson himself would probably consider a satisfactory exposition. Some of the argumentative passages of the book produce an obscure impression, because, perhaps, Dr. Kallen's language is not always adequate to his argument, falling into an excess or a defect.

On the whole, the most general question suggested to the mind of the reviewer by a perusal of this book is whether a comparison of the philosophies of James and Bergson along a line almost promised by the subtitle of Dr. Kallen's work: "A Study in Contrasting Theories of Life," would not have yielded a larger number of valuable points of contrast than Dr. Kallen has actually managed to bring out. Thus we have in James, on the one hand, a philosophical author of unexampled generosity of imagination, impartially accessible to the difficulties of speculative ideas, gallant, spontaneous, profuse; and on the other hand, in Monsieur Bergson, a writer singularly circumspect and precise, tenacious of chosen topics, and deliberate to an extraordinary degree in the application of his philosophical powers. Which will prove, in the long run, the stronger agent of transformation in philosophy? It is conceivable that the questions raised by confronting the personalities of the two men in such a way as this—by noting their differing attitudes towards the business of philosophizing as a part of the activity of human life—might carry one farther in the comprehension of some of the differences between the philosophies of William James and Monsieur Bergson—some of the technical differences, even—than could the methods that Dr. Kallen has employed, in the main, in the writing of his book.

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JOURNALS AND NEW BOOKS

REVUE PHILOSOPHIQUE. November, 1914. *La graphomanie* (pp. 393-427): OSSIP-LOURÉ. — Graphomania is an affective trouble as well as a disturbance of the intellectual faculties. It implies an exaggeration of the faculty of writing, with an absence or exaggeration of personality. "The criterion of graphomania is a lack of harmony between thought and the act of translating this thought into writing." Among the causes of graphomania are imitation and contagion, the commercialization of literature, literary prizes, and the relaxation of criticism. *Les "fondements du caractère"* (pp. 428-445): G. L. DUPRAT. — An exposition of Shand's theory of the emotional and sentimental basis of character. *Analyses et comptes rendus*. Bardonnet, *L'Univers-Organisme*: E. BOIRAC. F. le Dantec, *La "Mécanique" de la vie*: A. L. H. Plessner, *Die Wissenschaftliche Idee*:

- A. L. Hélène Naville, *Ernest Naville*: A. PENJON. Sylvain Lévi, *Mahayana-Sutrahān Kara*: H. DELACROIX. Paul Carus, *Nietzsche and Other Exponents of Individualism*: L. ARRÉAT. *Notices bibliographiques*.
- Dewey, John. *German Philosophy and Politics*. New York: Henry Holt and Company. 1915. Pp. 134. \$1.25.
- Driscoll, John T. *Pragmatism and the Problem of the Idea*. New York: Longmans, Green, and Company. 1915. Pp. xxvii + 274. \$1.50.
- Becher, Erich. *Naturphilosophie*. Die Kultur der Gegenwart Series. Leipzig und Berlin: Verlag von B. G. Teubner. 1914. Pp. x + 427. 16M.
- Ford, Henry Jones. *The Natural History of the State: An Introduction to Political Science*. Princeton: University Press. 1915. Pp. viii + 188. \$1.00.
- Haas, John A. W. *Trends of Thought and Christian Truth*. Boston: Richard G. Badger. 1915. Pp. 329. \$1.50.

NOTES AND NEWS

At a meeting of the Aristotelian Society on May 17, Mrs. Stephen read a paper on Complexity and Synthesis: A Comparison of the Philosophical Methods of Mr. Russell and M. Bergson.

"The data of sense are not instantaneous; all data cover a period of change. We commonly assume that we always perceive change as a series of events or states in relations of before and after, but our data of change are not all of the same kind. An unbiased introspection shows us that they fall roughly into two classes, viz., (1) in which they appear to form a series of distinct terms in relations of before and after, and (2) in which, though the data last through a period of change and are a succession and not simply one constant term, yet they do not appear to form a series of distinct terms. The first class we may call complexes, the second syntheses. Syntheses are much less familiar than complexes, and some deny that we are really acquainted with such data at all. Both M. Bergson and Mr. Russell admit that our data at least appear to be of these two kinds. The essential point is to see in what the two kinds differ, and the difference seems to depend on whether the datum consists or does not consist of logical terms and relations. This is the most fundamental point over which the two philosophers disagree, and the issue between them is, whether any, some, or all, of our data consist of such terms and relations as would satisfy the logical definitions of terms and relations. Mr. Russell has argued that some of the data which appear not to be logical must be so in fact, and that, since some must be, it is perfectly reasonable to suppose that all are. The argument rests on an experiment made originally by Stumpf. In a series such as a graduated color series, it may be impossible to perceive the difference between any two members of the series immediately

following one another, while it is quite possible to perceive the difference of any two between which a member intervenes. Whence it follows that, if logic applies to all data, the data must sometimes really be different from what they appear to be. M. Bergson sees no reason to believe that logic must apply to all data, and takes such experiments as these to show that some data really are not logical, and also gives instances of data of change which contain neither terms nor relations.—The main distinction, however, between the method of Mr. Russell and that of M. Bergson lies in the view each takes of the work performed by attention. Attention analyzes data. For Mr. Russell a synthesis (or non-logical datum) is nothing but a complex with some of the parts left out. We can pass from a synthesis to a complex by attention, which discovers relations of difference not previously distinguished, but which must have been there all along. M. Bergson holds, on the contrary, that attention arrives at complex data, not by discovering *more*, but by *leaving out* much of what was originally given in the synthetic datum. According to Mr. Russell our fullest knowledge comes from the complex data of attention; according to M. Bergson from the original synthetic data.—The argument of M. Bergson, that the essential thing in philosophy is to make the effort needed to turn our attention from the work of the analysis to the original which we analyze, was then followed out, and illustrated in quotations from his works.—Mr. Bertrand Russell opened the discussion, and said, in reply to the criticism of his theory, that he recognized that in confronting points of view seriously and fundamentally different, it was almost impossible to find an argument for one point of view which would appeal to the person taking the other. The argument, however, which had been intended in the paper to apply to people who take the view of the analytical philosophy was, he contended, invalid. An assumption ran through the argument that there is an exact parallelism between not perceiving a difference between data and perceiving an identity. All one could say in the case of the color-series experiment was that a difference between the two next elements in the series is not perceived. This is purely negative, and it is in precisely the same sense that things in the next room are not perceived. We perceive likeness, but not identity. Further, he admitted that there are experiences which seem to fit in with the sort of notion here described as synthetic knowledge of things—the state of mind we are in, for example, when beginning to write down our thoughts. It seems as if the whole thing were in our mind, and divided itself of itself into words as we write. But, while he recognized this sort of experience, he thought it capable of a quite different explanation, and one much less mystical than M. Bergson's. What he contended was that change could be dealt with on his plane, that of analytical logic, not that it can not be explained on M. Bergson's, provided you are willing with him to throw over logic. If you are willing to do that you become logically irrefutable.—Dr. Wildon Carr contended that the essential distinction between M. Bergson's analysis of change and Mr. Russell's was the entire rejection by the former of the antithesis of existence and non-existence, which he replaces with the distinction of acting and already acted. In change the first state does not cease to exist

when the next state is reached, any more than the first phrase of a melody ceases to exist when the next phrase is being played. In this M. Bergson is in full accord with physical science, for the law of the conservation of energy is in effect the rejection of the notion of existence and non-existence.—Mr. Mead questioned whether intuition in M. Bergson's sense were the same as knowledge by acquaintance in Mr. Russell's. Intuition was rather for M. Bergson the raw stuff of knowledge; it was rather a way of conceiving reality than a theory of knowledge. It approaches the mystical doctrine, but M. Bergson is not a mystic in the generally accepted sense, because he applies his doctrine to the ordinary operations of thought for everybody.—Dr. Wolf said the approximation to complete knowledge which M. Bergson described as intuition was a doctrine of Spinoza—the ideal state of knowledge, in which you grasp the whole and get a full view of reality. His own difficulty in regard to the doctrine was that whenever we proceed to analyze a certain intuition, it is no longer the original datum with which we started before the analysis, but a new and quite distinct datum with which we are dealing. The original kind of reality is that expressed by *esse is percipi*, but what we analyze is no longer that datum, but a different kind of reality, and our problem is to understand the relation of the one to the other.—Miss Oakeley said there was often an appearance of inconsistency in M. Bergson's theory, due to the fact that for him a theory of knowledge is a secondary matter, his main interest being a theory of reality. When M. Bergson attempts to explain how reality may be known by intuition, his difficulties are similar to those of Kant; it is like trying to know sense data without the categories. Intuition is an ideal of knowledge, but the knowledge it would give us is not anything which intellect could know. Intellect gives us true knowledge, but it constructs things as if in a world of space, and space is not real; only time is real.—Mrs. Stephen in her reply said, with regard to Mr. Russell's contention that identity is not a thing we perceive by our sensations, that even if this be granted, it does not do away with the difficulty, because in that case we can never know whether there is difference in sense data or not. Sense data are erected into things by themselves of which we can not say *esse is percipi*.—With regard to knowledge, the interesting point in M. Bergson's doctrine is the suggestion that we can get new knowledge in another way than by constructing psychological hypotheses, also in a way which is not successive."—*Athenæum*.

DR. MORRIS R. COHEN, of the College of the City of New York, has been advanced from assistant professor to associate professor of philosophy at that institution.

PROFESSOR JOHN H. KEEN, of the University of Texas, will lecture in philosophy during the next academic year at the College of the City of New York.

DR. HENRY SLONIMSKY, lecturer in philosophy at Columbia University, has been appointed lecturer in philosophy at Johns Hopkins University.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

NIETZSCHE'S SUPERMAN

"SUPERMAN" is a strong, picturesque expression such as Nietzsche delighted on occasion to use. It occurs chiefly in the prose-poem, "Thus Spake Zarathustra" (1883). It does not appear in "Beyond Good and Evil," which soon followed and is a more matter-of-fact statement of essentially the same thoughts as are contained in the earlier work, and only once in "The Genealogy of Morals," which succeeded "Beyond Good and Evil" and is a more connected treatment of certain controverted special points in that book.

Yet, like all Nietzsche's extreme phrases, it covers a substantial thought. The word, oddly as it sounds (I think it was Mr. Bernard Shaw who first popularized it among us), is formed most naturally. We often speak of "superhuman" excellencies and qualities, though usually having in mind something bordering on the Divine; and any being having these superiorities is, of course, literally speaking, a superman—the only novelty of Nietzsche's view being that the superhuman traits are regarded as attainable by man. Moreover, the substantive is not absolutely new. Mommsen spoke of the Æschylean heroes as "supermen." Homberger (1882) called Bismarck a "superman." Goethe used the word a couple of times:¹ Herder did once in an unfavorable, Jean Paul in a favorable, sense.² The first use of it by Nietzsche (so far as I remember) is in "Joyful Science" (1882), where "Übermenschen" are spoken of along with Gods and heroes, and by way of contrast with "Nebennenschen" and "Untermenschen" (such as dwarfs, fairies, satyrs).³ Before this, he had made use of the adjective as we all do, speaking, for instance, of "superhuman goodness and justice"—and, indeed, "super" in general (or its equivalent) appears rather often, as in "super-German" (of Wagner's thoughts), "super-national" (of uni-

¹ In the "Zueignung" of 1784 with the "Urfaust," 1775.

² For a full account of the history of the term, see Professor R. M. Myer's article "Der Übermensch. Eine vorgeschichtliche Skizze," *Zeitschrift für deutsche Wortforschung*, May, 1900.

³ "Joyful Science," § 143.

versal aims), "superhellenic," "superhistorical"; he spoke of man as the "super-animal" and of a "distant super-world."

During the period of reaction against his early idealization of Wagner, Nietzsche makes adverse reflections on the elevation of individuals into superhuman beings. The cultus of genius seems to him a continuation of the old worship of Gods and princes; when one raises certain men to a superhuman level, one is apt to look on whole classes as lower than they really are. There is a danger for genius itself when it begins to fancy itself superhuman.⁴ It is curious that Nietzsche always had a more or less pronounced aversion to Carlyle's hero-worship.⁵ Even as late as "Thus Spake Zarathustra" there is a slighting reference to Gods and supermen (taken as people up in the clouds); Zarathustra is tired of them⁶—as of the poets who invent them. And yet, despite such chaffing, Nietzsche's early instinct for what is superior and great is by the time of "Thus Spake Zarathustra" in full sway again, and this book itself is a product of it. He had said almost at the outset of his career (*i. e.*, had represented a disciple of culture saying, but it was plainly a self-confession); "I see something higher and more human above me than I myself am; help me all to attain it, as I will help every one who feels and suffers as I do—in order that at last the man may arise who is full and measureless in knowledge and love and vision and power, and with his whole being cleaves to nature and takes his place in it as judge and valuer of things."⁷ And now, after years of self-criticism in which everything in his early beliefs that could be shaken was shaken, the old attitude recurs—and stands out clearer, and more assured than ever.

"When half-Gods go,
The Gods arrive."

Wagner had gone, the early illusions about him had vanished; but the transeendent vision of superhuman excellence which Nietzsche had momentarily identified with that great figure survived.

II

"Superman" is a poetic designation for great individuals carried to their utmost human limit, for "persons" in the full sense of that term. Superman is man as he might be—not another species, but our very human flesh and blood transfigured. As Professor

⁴ "Human, All-too-Human," §§ 461, 164. Cf. "Dawn of Day," § 298.

⁵ The references to Carlyle are in "Dawn of Day," § 298, "Joyful Science," § 97, "Will to Power," § 27, "Ecce Homo," III., § 1. For Emerson, however, Nietzsche had practically unmixed admiration.

⁶ "Thus Spake Zarathustra," II., xvii.

⁷ "Schopenhauer as Educator," sect. 6.

Georg Simmel, one of the critical writers on Nietzsche who has most penetrated into his thought, puts it, "The superman is nothing but the crystallization of the thought that man can develop beyond the present stage of his existence—and hence should."⁸ Zarathustra has scanned the great men of history, and the greatest of them are, like the smallest men, "all-too-human"; "there has never yet been a 'superman'"⁹ Great individuals like Alcibiades, Cæsar, Frederick II., Leonardo da Vinci, Cæsar Borgia, Napoleon, Goethe, Bismarck are approximations to the type, but all come short somewhere—they were men of power, took great and fearful responsibilities, but were spoiled by some defect.¹⁰ Zarathustra is spoken of by Nietzsche as an incorporation of the ideal,¹¹ but Zarathustra is an imaginary figure—and, as portrayed, he himself looked beyond.

Nietzsche once puts his problem, and incidentally reveals his understanding of the new phrase, thus: Dismissing the current individualistic morality along with the collectivistic, since the former, like the latter, fails to recognize an order of rank among men and wants to give equal freedom to all, he says that his thoughts turn rather on the degree of power that one or another person may exercise over others or over all, *i. e.*, on how far a sacrifice of freedom and virtual enslavement may be the basis for the bringing forth of a higher type. Put in the crudest way, to what extent could we sacrifice the development of humanity to the end of bringing a higher type than man into existence? His concept, or rather image (*Gleichniss*), for such a type is "superman"¹² (I can not now stop to explain that Nietzsche's fundamental reading of human nature is in terms of power—power, however, not being taken after the common fashion as antithetical to intellect, virtue, and spiritual things in general, but as underlying them and giving them their basis, meaning, and validity.) Another statement of his problem, put in the form of a demand, is: "To bring forth beings who stand elevated above the whole race of man and to sacrifice one's self and one's kind to this end."¹³ Taking this with verbal distinctness, a new species would seem to be suggested, and countenance would be lent to the view of those who hold that Nietzsche had in mind a possible evolution in the future such as Darwin is supposed to have proved in

⁸ "Schopenhauer und Nietzsche," page 235. Cf. pages 5, 6.

⁹ "Zarathustra," II., iv.

¹⁰ Napoleon, Goethe, Stendhal, Heine, Schopenhauer, Wagner, Balzac are once spoken of as "good Europeans" (*i. e.*, super-national) and a kind of "higher men," but not deep and original enough for a philosophy such as Nietzsche craves ("Beyond Good and Evil," § 256).

¹¹ "Ecce Homo," III., vi, § 6.

¹² "Will to Power," §§ 859, 866.

¹³ "Werke," XIV., 261, § 4.

the past, namely, the development of one distinct order of beings out of another. But there is reason to doubt whether Nietzsche had anything so definite as this in mind. The whole question as to his relation to Darwinism is a mooted point. He may himself have had different attitudes at different times—that of criticism becomes marked toward the end of his life. The view that seems to me most reasonable is that he finally settled down to thinking of supermen simply as extraordinary specimens of men, who, however, if favored, instead of being fought as they commonly are, might lead to a considerable modification of the human type—one so great that, speaking in literary and fluid rather than scientific fashion, the result might be called a new species. He expressly says in one of his later books, "Not what shall take the place of humanity in the successive order of beings is the problem I propose—man is an end; but what type of man we shall train, shall wish for as the one of higher value, worthier of life, surer of the future. The more valuable type has often enough existed, but as a happy chance, an exception, never as something *willed*. Instead of this it has been something feared, almost *the* fearful thing—and from motives of fear the contrasted type has been willed, trained, *attained*: man the domestic animal, the social animal, the sick animal—the Christian." In the following paragraph, he speaks of the higher type as "relatively" a "sort of superman."¹⁴ Once he makes a derisive reference to "learned cattle who had suspected him of Darwinism."¹⁵ If Nietzsche finally held to Darwinism at all—and it is not certain that he did¹⁶—it was only in the sense of a development—theory in general, much as Emerson spoke of the worm mounting "through all the spires of form to man." For not evolution, not even selection, is a distinctive Darwinian idea, but only *natural* selection, along with the theory of surplus numbers and the consequent struggle for existence—and Nietzsche distrusted these premises of Darwin's view and wanted not so much natural selection (which he thought often favored the weak) as conscious, human selection in the direction of individuals of maximum power.

III

But when we ask how the superman is to be got, we are left more or less in the vague. Nietzsche thinks that we have not sufficient data for a judgment as yet. Physiology, medicine, psychology, sociology—sciences that must give us the data—are not developed enough.

¹⁴ "The Antichristian," §§ 3, 4.

¹⁵ "Ecce Homo," III., § 1.

¹⁶ There is no better discussion of the subject than in Professor Raoul Richter's "Friedrich Nietzsche, Sein Leben und Sein Werk" (2d edition, 1909), pages 219-238.

Those who imagine that Nietzsche has any short cut to Utopia have little idea of the manner of man he was. George Brandes called his view "aristocratic radicalism" (in distinction from radicalism of the democratic or socialistic type); but he is radical in thought, not in proposing a programme. He has a profound sense of the slowness of all real social changes. He contrasts the French Revolution with what it might have been had steadier heads kept in control.¹⁷ Chronic ailments (such as lung troubles) develop from slight causes repeated constantly, he observes, and cures, if possible, come in much the same way (in this case by repeated deep breathing); and the truth holds equally of spiritual ills.¹⁸ So "no impatience" now! "The superman is our next stage"—but "moderation" along with courage is needed in aiming thitherward. Zarathustra, the prophet of the coming order, has repose, can wait. Life and action having got a purpose and meaning, there is no need of leaping, and each step onward may be perfect and give happy feeling. All violent longing is to be overcome—the calm of the great stream is to come in its place.¹⁹ Speaking more prosaically, we are to guard against exchanging the customary morality for a new valuation suddenly and violently—we must continue to live in the old for a long time and take the new in small doses repeatedly, till we find, very late, probably, that the new valuation has got predominant force and that the little doses have made a new nature in us.²⁰ Indeed, in order to be taught, the new morality must introduce itself in connection with the existing moral law and under its names and guises—that is, it must be more or less opportunist and compromising.²¹ Nietzsche does not think much of "agitators," all too apt to be empty heads, who flatten and inflate any good idea they get hold of and give it out with a hollow sound.²² It is a change in the depths of thought that is needed, not a noisy enthusiasm. And this is why he might have had reserves as to some who call themselves Nietzscheans to-day—for, he observes, with a touch of humor, the first disciples of a doctrine prove nothing against it!²³

¹⁷ "Dawn of Day," § 534.

¹⁸ *Ibid.*, § 462.

¹⁹ "Werke," XIV., 263, § 10; 265, § 21; 286, § 99.

²⁰ "Dawn of Day," § 534.

²¹ "Will to Power," § 957.

²² "Genealogy of Morals," III., § 8.

²³ Professor Theobald Ziegler, of Strassburg, remarks with a certain complacency that he was the first professor of philosophy to take up Nietzsche in a *Seminar*, and that his students, all Nietzsche-worshippers at the beginning, were at the end Nietzschean no more ("Der Turnhahn," June, 1914, page 643). But it may be questioned whether average university students are capable of really grasping Nietzsche, so that accepting or rejecting him means little in their case. He is for those who have philosophical training and ripe powers of reflection to start with—for men (in every sense of the word).

I have said that his thought as to how to reach the superman is vague. It may be something, however, to turn the mind in this direction, and to have a clear conviction that the result is more or less in *our* (*i. e.*, human) hands. If mankind were really persuaded that its chief function is not to make itself happy and secure on the earth, but to produce godlike individuals, it would surely make a difference. At present, the old Christian thought of heaven and hell being no longer regnant, there is, Nietzsche thinks, no common aim, and things are going by luck, hit or miss. If there is any faith in modern men, it is a vague and more or less lazy confidence that things will come out right anyway, "Providence" or "evolution" or "progress" or "the course of things" being the determining matter—as if, says Nietzsche, it did not depend on us how things come out, as if we could let them go their way.²⁴ Indeed, what does "coming out right" mean, save as we have some notion of what is right? Nietzsche is opposed to leaving things to chance²⁵—and it may be counted one of his distinctions in the future that he restored rationality (in the large sense) to its proper place as the ruler of the world—something to be quite distinguished from the faith that rationality, with a big R, does rule the world—and that he helped to make man the sovereign creator of his own destiny.

A word which Nietzsche often uses is *Züchtung*; its meaning is training or breeding, a practical equivalent being purposive selection. It is something that Burbank is doing in California in the realm of plant life. Nietzsche, however, uses the term in a large sense and comprehends under it all the means, physical, social, spiritual, that may be used for producing the great result at which he aims.²⁶ Sometimes he uses the word *Erziehung*, meaning education, not in our conventional, but in the broadest way. *Züchtung*, however, brings out more clearly the necessary factor of selection.²⁷ Let us observe, he urges, nature and history and see in what way notable results have been reached unconsciously and perhaps clumsily and by very slow methods in the past; then, taking things into our own hands, let us see if the results we aim at can not be reached in a similar way, but more surely and with less waste of time and force. Let an organized mankind test Darwin's assertions by experiment—even if the experimentation covers centuries and millenniums and we

²⁴ "Genealogy of Morals," II., § 12.

²⁵ "Will to Power," § 243.

²⁶ Cf. the excellent remarks of Nietzsche's sister, "Werke" (pocket edition), VII., page xi.

²⁷ *Züchtung* is contradistinguished from *Erziehung* by Dr. F. Rittelmeyer, one of the most discriminating German writers on Nietzsche, in "Friedrich Nietzsche und die Religion," page 59.

have to turn the whole earth into experiment stations. Let it be proved whether apes can be developed into men, and lower races into higher races, and whether from the best mankind has at present to show, something still higher can be reared.²⁸ The Chinese have made trees that bear roses on one side and pears on the other—and where are the limits to be set to the possibilities of selective human breeding? Historical processes may be improved upon: granting that races and racial struggles, national fevers and personal rivalries, have done their part, why could not the long-drawn-out and painful tale be crowded into brief space and the net results be got without the fearful waste?²⁹ It is evident that Nietzsche has in mind a control of humanity such as has not been heard or perhaps thought of before. He speaks repeatedly of a world-economy, a rule of the earth—and it might be said in reply that there would be need of a God to administer it. A sort of contradiction might be charged up to him in that the superman who is to be reached as the outcome of a process of evolution would be required to start and guide the process—we should have to be Gods to know how to create them! And Nietzsche could only answer that, as individuals learn by doing and have to venture even if they make mistakes, so with mankind—that the only practical thing in the present case is to start with as strong, masterful an intelligence as we can get, aiming at world-control, and hope sooner or later to get a world-result.

IV

The initiative in such an enterprise can evidently only be taken by those who have the thought that inspires it—naturally they will be few. They must be thinkers, and men of action at the same time.³⁰ They will choose themselves, and, so to speak, put the crown on their own heads. Mere physical force does not constitute them—such force can do little in a connection like this; it is not a question of wealth—our rich men, they are the poorest, says Nietzsche, the aim of all wealth being forgotten;³¹ nor is it any longer a question of race, though a superior race, the “blonde (Aryan) beast,” did once lift Europe to a higher level—but there are no pure races in Europe now;³² nor is it a question of aristocratic descent—where in Germany will you find, Nietzsche asks, a great family in whose blood there

²⁸ “*Werke*,” XII., 191, §§ 408–9. Cf. “*Dawn of Day*,” § 551; “*Werke*” (pocket edition), V., 396, § 13.

²⁹ “*Werke*,” XII., 190, § 408.

³⁰ Cf. Shaw’s description of the superman as some kind of philosopher-athlete, “*Man and Superman*.”

³¹ “*Will to Power*,” § 61.

³² “*Werke*,” XIII., 356, §§ 877–9.

is not venereal infection and corruption? Peasant blood, he thinks, is still the best.³³ Not whence you come, but whither you go, is the critical question for the nobility to be.³⁴ The challenge is, How strong are you, how near completeness in body, mind, and soul, how far can you stand alone, assume responsibility, be your own master, and thereby be fit to master others.³⁵ In other words, it is a question of character (in the great sense).³⁶ The men to take the lead in redeeming the world from folly and chance and in organizing collective experiments and hazardous enterprises to that end will be "philosophers" of this type. Every sound quality that belongs to the ascending line of life will be theirs. So-called "aristocrats of intellect" are not enough;³⁷ there must be blood and sound physical organization; they must be capable of projecting a new physiological line—all aristocracies start from superior whole men.³⁸ Nor will they despise the material basis of life. Though wealth will be nowise a distinctive mark of them (others will have more than they) they will have wealth—enough to make them independent and able to do what *they* like, instead of what other people like, enough to lift them above pitiful economies, enough to marry well on and pay for the best instruction to their children.³⁹ Nietzsche's ideas will hardly be thought extravagant in this connection. He once says (not in reference to the particular point in hand) that 300 Thaler a year may have almost the same effect as 30,000; and, in commenting on the

³³ *Ibid.*, 347, § 859 (Luther, Niebuhr, Bismarck are mentioned as specimens); cf. on a healthy peasant, rude, shrewd, stubborn, enduring as the superior type, "Zarathustra," IV., iii, also on the possibility that there is to-day among the people, and particularly among peasants more relative superiority of taste and finer feeling of reverence than among the newspaper-reading *demi-monde* of intellect, the educated, "Beyond Good and Evil," § 263.

³⁴ "Zarathustra," III., xii, § 12. Nietzsche even finds it possible to take a certain satisfaction in the democratic leveling process that has been going on in recent centuries, since, now that the struggle between *classes* is over, an order or rank based on *individual* merit can arise, "Werke" (pocket edition), VII., 485-6, § 36.

³⁵ "Werke," XII., 363-4, §§ 397, 399.

³⁶ "Beyond Good and Evil," § 203.

³⁷ "Will to Power," § 942.

³⁸ Cf. "Werke," XII., 410; 368, § 718; XIV., 263, § 10. In speaking of aristocracy Nietzsche says that he has not in mind the prefix "*von*" and the Gotha calendar, adding that he intercalates this *für Esel* ("Will to Power," § 942). None the less does he consider aristocracies to be the fruit of time and training ("Joyful Science," § 40; "Beyond Good and Evil," § 213). Professor Ziegler thinks that in admitting this Nietzsche becomes reactionary and plays into the hands of the Junker ("Friedrich Nietzsche," page 144)—but one may admit the principle of descent and yet allow that the family-process may have a beginning and, also, alas! a degenerate ending.

³⁹ "Human, All-too-Human," § 479.

Greek aristocracies with their hereditary property and saying that they "lived better" than we, he significantly adds that he means "better" in every sense, above all much more simply in food and drink.⁴⁰ At the same time the aristocracy to be will *control* wealth, even if not possessing it in any high degree—they will see that it does not hinder, but rather serves the great public ends they have at heart. Nietzsche even throws out what may seem a wild suggestion, namely, that the wise must secure the monopoly of the money-market: however elevated they may be above the wealthy class by their aims and manner of life, they must give direction to wealth—it is absolutely necessary, he declares, that the highest intelligence give direction to it. Money will be safest under their control—otherwise it will be liable to go (as so often happens now) for extreme one-sided tendencies.⁴¹

These men, too, will know, as real aristocracies always know, the significance of marriage.⁴² Love will be looked at from a new angle (new, that is, to the modern world)—it will be controlled by ideal considerations.⁴³ Marriage will not be from passion or emotion simply. Nor will mere considerations of mutual fitness and compatibility be the controlling thing. The main aim of marriage for men like these will be the continuation of their type, and propagation will be a matter of the utmost sacredness.⁴⁴ Zarathustra speaks in this spirit to a disciple: "I have a question for thee alone, my brother: like a sounding-lead, cast I this question into thy soul, that I may know its depths. Thou art young, and desirest a child and marriage. But I ask thee: art thou a man entitled to desire a child? Art thou a victorious one, a self-conqueror, a ruler of thy passions, a master of thy virtues? Thus do I ask thee. Or does the animal speak in thy wish, or mere physical demand? Or loneliness? Or discontent with thyself? I would have thy victory and thy freedom long for a child. Living monuments shalt thou build to thy victory and thy emancipation. Beyond thyself shalt thou build. . . . Not only onward, but upward shalt thou propagate thyself. To this end

⁴⁰ "The Wanderer and His Shadow," § 184. Cf. as to the danger of wealth, and of possessions possessing us, "Mixed Opinions and Sayings," §§ 310, 317. Burekhardt remarks that social rank was not determined by wealth among the Greeks of the 5th century, B. C. (*Griechische Kulturgeschichte*, Vol. IV., page 208-210).

⁴¹ "Werke," XII., 204, §§ 434-435.

⁴² Cf. "Werke," XI., 350, § 505.

⁴³ "Werke," XIV., 261, § 3. Cf. XII., 196, § 418 (reflections on conditions that were favorable to the many free individuals among the Greeks, among them, "marriage *not* on account of erotic passion").

⁴⁴ "Werke," XIV., 261, § 3. Cf. "Will to Power," §§ 732, 804.

may the garden of marriage help thee! Marriage so call I the will of two to create one who is more than they who create it."⁴⁵ In this light will the men whom Nietzsche looks for regard marriage. He speaks of the help which physicians may give in advising to an end like this.⁴⁶ Women may help too—the deepest instincts of motherhood may be brought into line with the aim of producing a higher race.⁴⁷ It is, of course, a different aim from the ordinary one of "founding a family" which vulgar and self-centered people may wish to do—the aristocracy to be will exist for universal ends, and, instead of being a closed line or set of lines, it will take to itself new elements of promise wherever they appear, and will draw on all the varied talents that are needed for the administration of the earth.⁴⁸ As little is it a *national* aristocracy which Nietzsche has in mind. His thought is European (or wider) and the aristocracy will be international—the principle of the possibility of a United Europe; he speaks of possible "international marital unions"⁴⁹ as fortresses under whose protection the training of a race of future lords of the earth may go on.⁵⁰ He is aware that accident more or less rules in the world, and perhaps always will—he is aware that genius itself is often a happy accident.⁵¹ Indeed, some of his interpreters can not clearly make out whether the superman is to be trained and educated or is to come like a piece of fate.⁵² Nietzsche, however, really combines both views, saying that we may look to heredity, happy marriages, *and* to happy accidents to give us great men⁵³—he is really a more balanced thinker than many imagine.

With this training of an aristocracy is also to go every possible measure for preventing degeneration among the mass of men. Races that can not be utilized in some way may be allowed to die out. Sickly people and criminals may be kept from propagating them-

⁴⁵ "Zarathustra," I., xx (I practically follow here Mr. Thomas Common's admirable translation). As to the carelessness of men of genius in marrying, see what immediately follows; also "Werke," XI., 131, § 418; "Dawn of Day," §§ 150-1.

⁴⁶ "Human, All-too-Human," § 243. Cf. "Werke," XI., 145, § 453.

⁴⁷ "Zarathustra," I., xviii ("Let the beam of a star shine in your love! Let your hope say 'May I bear the superman!'").

⁴⁸ "Werke," XIV., 226-7, §§ 457, 459.

⁴⁹ "Werke," XIII., 358, § 881. Cf. XIV., 226, § 456.

⁵⁰ "Will to Power," § 960. Cf. "Werke," XII., 368, § 718. A mingling of German and Slavic blood is particularly suggested; also strains of the race possessing the greatest financial ability, the Jewish, will be of advantage ("Werke," XIII., 273, § 872. Cf. "Beyond Good and Evil," close of § 251).

⁵¹ Cf. "Werke," XI., 273, § 289; "Will to Power," § 907.

⁵² E. g., August Dorner, "Pessimismus, Nietzsche und Naturalismus," pages 194-5.

⁵³ "Will to Power," §§ 995-6.

selves.⁵⁴ Nietzsche does not think much of those who talk of man's rights in marriage; it is better to speak of the right to marry, and he thinks it a rare right. Permission to produce children should be granted as a distinction—physicians' certificates being in order.⁵⁵ Women have obvious power here, and with power Nietzsche suggests responsibility. Remarking that the earth might be turned into a garden of happiness, if the dissatisfied, melancholy, grumbling could be prevented from perpetuating themselves, he intimates here "a practical philosophy for the female sex." It would also be better if men of high intellect, but with weakly nervous character, could not be perpetuated in kind.⁵⁶

V

Under what general social conditions would the higher species (or the incipient approaches thereto) best arise? Nietzsche's view is almost paradoxical. Not favorable, but unfavorable conditions are best for them. With all said and done as to aiming at them and facilitating them, circumstances must not be too easy, conditions too soft, for them. He generally gives us the extremes of his thought (of course, at different times or in different connections), leaving us to reconcile them—and I am not sure that I can quite reconcile them in this case. His underlying idea is that the men of the future will be men of power and can only be proved by opposition. He early saw the place of insecurity, peril, and danger in educating the race and bringing out its higher qualities, and he applies the view in the present connection. He had made a special study of Greek life (his professorship at the University of Basel was of classical philology)—and of the marked individuals who appeared in such numbers in Greek city-states he observes, "It was necessary to be strong: danger was near—it lurked everywhere." Men became great not so much from the good intentions of the people, as because danger challenged them and they asserted themselves even to the point of seeming *böse* to the people.⁵⁷ So with the Romans—they were the outcome of a long-continued struggle for power: it was in this way that they reached their giant stature, like that of a primeval forest.⁵⁸ Let one go through history, says Nietzsche: the times when the individual becomes ripe for his perfection, *i. e.*, free, when the classic type of

⁵⁴ "Werke" (pock. ed.), III., 436, § 9 (Cf. J. A. Thomson, "We do not want to eliminate bad stock by watering it with good, but by placing it under conditions where it is relatively or absolutely infertile," "Heredity," page 331); "Werke," XII., 188, § 404.

⁵⁵ "Werke," XIV., 249, § 522; XII., 188, § 403; XIV., 248, § 518.

⁵⁶ "Mixed Opinions," § 278; "Werke," XIV., 263, § 10.

⁵⁷ "Twilight of the Idols," X., § 3; "Werke," X., 384-5, § 199.

⁵⁸ "Will to Power," § 959.

the sovereign man is reached—oh no, they are never humane times. There must be no choice, either above or below trodden under foot. It is no small advantage to have a hundred Damocles-swords over one—thereby one learns to dance, comes to “freedom of motion.”⁵⁹ The view seems extreme; but the fundamental idea of Nietzsche, that of an order of rank (*Rangordnung*), presupposes differences of power, and conflict and danger are a condition of its establishment—man in his struggle with nature being the grandiose prototype. Even under conditions of civilization one must guard against too much intercourse with the good-natured—for it relaxes: all intercourse is good in which one is armed (not necessarily with a pistol—must I add for the benefit of the simple?)⁶⁰ Perhaps in no way does Nietzsche go so contrary to current ways of thinking; and he is well aware of it. Modern life, he remarks, wants at all points to be protected—yet when danger goes, vigilance goes, too, and stimulus and exuberance of spirit, “coarse remedies” being revolutions and wars. It may even be that with the general increase of security, fineness of mind will no longer be needed—and will decrease as in China; struggle against Christianity, the anarchy of opinion, competition among princes, peoples, and business men, having thus far hindered the complete result.⁶¹ To this extent Nietzsche looks at the whole modern situation from an unusual standpoint. With his main thought on the development of a new and higher class of men he looks even at ordinary war and at social disorders differently from most of us. Once he exclaims, “If things grow more insecure about us, so much the better! I wish that we live somewhat circumspectly and martially.”⁶² Wars are for the time-being the greatest stimulants of the imagination, now that Christian transports and terrors have become feeble. The social revolution which he thinks is coming will, perhaps, be something still greater. Accordingly, he looks with a certain complacency on such developments. The French Revolution, he observes, made Napoleon and Beethoven possible; and for a parallel recompense one would be obliged to welcome an anarchistic downfall of our whole civilization.⁶³ It is under conditions of peril that personal manly virtue gets value, and a stronger type, physically and in every way, is trained; beauty (*schöne männer*) again becomes possible, and it really also goes better with the philosophers.⁶⁴

And yet Nietzsche had not had his Christian education for noth-

⁵⁹ “Will to Power,” § 770. Cf. “Twilight of the Idols,” IX., § 38.

⁶⁰ “Will to Power,” §§ 856, 918.

⁶¹ “Werke,” XI., 369, § 558; XII., 191, § 410.

⁶² “Werke,” XI., 368, § 557; cf. 142, § 451.

⁶³ “Werke,” XI., 369, § 559; “Will to Power,” §§ 868, 127; *ibid.*, 877.

⁶⁴ “Will to Power,” § 127; cf. § 729, also “Werke,” XIII., 358, § 882.

ing; and it is the necessities of the situation, the logic of the production of great men, that lead him to say what he does. "Persons" do not come easily in this world. Good intentions alone are not sufficient—the force of circumstances is generally a cooperating cause. Moreover, rude situations may be necessary, where finer ones can not be appreciated. Speaking of physical wars and revolutions, he calls them "coarse remedies"⁶⁵ [for the overmuch security in which we love to live]. The general truth is simply that a "person," being by nature something more or less isolated, needs temporary isolating and compulsion to an armed manner of existence: if this is not his fortune he does not develop. What the nature of the compulsion is, or rather must be, depends on the grain of the man. Nietzsche required no wars or physical combats to make him a "person" and one of the most individual ones of modern time; but power on a lower level may require opposition of a coarser sort. Hence, though it is quite possible that the coming aristocracy will be more or less a fighting aristocracy (in the literal sense) almost from the start, it will not be merely that; the fighting, too, will be forced rather than chosen. Moreover, the fighting may be delayed; at least Nietzsche saw no immediate occasion for it. At present, he says, though the new association will assert itself in warrior fashion, it will be a war without powder, a war between ideas and their marshaled hosts.⁶⁶ Most of what he says in praise of war (not all) has reference to war of this sort. How little physical war was an ideal to him appears in his asking whether the higher species might not be reached in some better and quicker way than by the fearful play of wars and revolutions—whether the end might not be gained by maintaining, training, separating certain experimental groups?⁶⁷ His mind evidently wavered as to the probable future course of things. One can only describe him as *utrumque paratus*. Sometimes he has misgivings as to whether we *can* foresee the most favorable conditions for the emergence for men of the highest worth—it is too complicated, a thousandfold too complicated a matter, and the chances of miscarriage are great, very great.⁶⁸ The only thing plain to him is what ought to be, what he desires—and the fact that we can set the type on high in our estimation, and be ready for any manifestation of it when it appears; and also that those who feel that they anyhow approximate to it can more or less train themselves. They can heighten courage, insight, hardness, independence, the feeling of responsibility in themselves—they can live differently from the mass

⁶⁵ "Will to Power," § 886.

⁶⁶ "Werke," XII., 368, § 718.

⁶⁷ "Werke," XIII., 175–6, § 401.

⁶⁸ "Will to Power," § 907.

now, and will probably find plenty of opposition without seeking it or coming to an actual passage of arms.⁶⁹ Nietzsche was aloof from the world of to-day, and had and has plenty of opposition. Is not his an evil name in the mouths of most men now? I hear little but dispraise of him, or at best condescension and pity towards him, in America. He himself had no illusions about the probable lot of men who thought as he did. In the figure of Zarathustra he tells us that he attempted a portraiture of the pain and sacrifice involved in a higher man's training—he leaves home, family, fatherland, is contemned by current morality, has the suffering attendant on new ventures and mistakes, while deprived of all the comfort which older ideals bestow.⁷⁰ Nietzsche once says of his own disciples: "To the men who concern me I wish suffering, solitude, illness, mistreatment, disgrace—I desire that deep self-contempt, the suffering of self-mistrust, the pitiful state of the vanquished, may not be unknown to them: I have no pity for them, because I wish them the one thing that can prove to-day whether a man has worth or not—that he hold his ground."⁷¹

VI

And so, as I have said, his men of the future will more or less train themselves. They may in certain particulars anticipate the immensely slow processes of natural selection (which breed occasionally men of their type), put aside conditions that are not propitious to them (isolate themselves), select the influences (nature, books, high events) that suit them, doing much thinking on the subject; they may keep in mind benevolent *opponents* only, independent friends,⁷² and put out of view the lower sorts of humanity, practising the willing blindness and deafness of the wise.⁷³ Further they may concede to themselves a right to exceptional actions, as exercise in self-control and the use of freedom; they may put themselves in circumstances where they are obliged to be hard;⁷⁴ they may win surplus power and self-confidence by every kind of asceticism; they may school themselves in fine obedience and in the fixed sense of differences of rank among men, altogether outgrowing the idea that

⁶⁹ *Ibid.*, § 907.

⁷⁰ "Werke" (pock. ed.), VII., 494, § 67.

⁷¹ "Will to Power," § 910.

⁷² Nietzsche remarks that "crowds are not good even when they follow you."

⁷³ "Werke," XII., 123-4, § 243.

⁷⁴ Nietzsche uses the word *Barbar* here; he has in mind, as he elsewhere explains, not barbarians such as we ordinarily fear, namely, those coming up from the lower ranks of society, but conquering, ruling natures descending from above, of whom Prometheus is a type ("Will to Power," § 900).

what is right for one is allowable for another and ceasing to emulate virtues that belong to others than themselves.⁷⁵ Their manner of life will vary from that of the "industrial masses" (the business and working class). Industrious habits, fixed rules, moderation in all things, settled convictions—in short the "social virtues"—are indeed best for men at large; in this way they reach the perfection of their type. But for the exceptional men whom Nietzsche covets to see, other things are good: leisure, adventure, unbelief (as ordinarily understood), even excess—things that, if allowed to average natures, would cause their undoing. The very discipline that strengthens a strong nature and fits it for great undertakings undermines and shatters weaker men—"doubt," *la largeur de cœur*, experiment, independence.⁷⁶

So may higher men educate themselves. And yet to create the whole set of conditions which accident sometimes provides, for the appearance of great individuals, would require, Nietzsche remarks, an iron-hardness, "iron men," such as have never existed. Practically higher natures can only train themselves, utilize any existing situation, and wait for developments.⁷⁷ Wars will probably come willy-nilly, and though Nietzsche has little interest in ordinary wars, serving as they do only national ambitions and aims of trade [such, I may say on my own account, as the present war in Europe]⁷⁸ they may none the less serve in some measure as training-ground for the future type. But more than this, the great war may come, the war for an idea, for the rule and organization of the earth (for willing

⁷⁵ "Will to Power," § 921.

⁷⁶ *Ibid.*, §§ 901, 904. The (or an) element of danger in Nietzsche's teaching is right here: when ordinary men, reading him, take themselves as exceptions, and the small fancy themselves great.

⁷⁷ *Ibid.*, § 908.

⁷⁸ What Nietzsche would have thought of wars of the type of the present one may be gathered in part from the following. After speaking of several things which Germans have on their conscience, he says: "Finally, when on the bridge between two centuries of decadence, a *force majeure* of genius and will, strong enough to make out of Europe a unity, a political and economic unity, to the end of a world-government, appeared, the Germans [opposed it and] with their "Freiheits-Kriegen" destroyed for Europe the significance, the wonderful significance, that attaches to Napoleon. Doing this they have on their conscience all that ensued and now is—this sickness and unreason which is the strongest force against culture that exists, nationalism—this *névrose nationale* from which Europe is sick, this eternalizing of Europe's system of small states, and of small politics. They have destroyed for Europe its own meaning, its *rationale* (*Vernunft*)—they have brought it into a blind alley.—Does any one aside from me know a way out of this blind alley? . . . A task great enough to bind the peoples together again?" ("Ecce Homo," III., x, § 2.) It is perhaps not too much to say that it is malignant nationalism (on both sides) that has brought on the present conflict.

compliance with the idea on the part of all concerned can not be taken for granted)—and to this, if it comes, Nietzsche's higher men will not merely reluctantly consent, they will inspire and lead in it. Oddly as it may sound to our ears to-day, he has a special word of recognition for religious wars, and this just because they turn on intellectual points.⁷⁹ In general, from this point of view, the church is a superior institution to the state, since it gives to spiritual things the first place and to spiritual men rather than men of physical force the supreme authority; and if war must needs be, then it is nobler to contend for shades of doctrine than for material possessions.⁸⁰ And the great war, the only conflict in which Nietzsche is supremely interested, will be one for a *conception*, a philosophical doctrine—not with this as a cloak for other aims, but on behalf of it⁸¹—that conception of an ordered world, a rule and administration of the round earth, to which I have before alluded. He ventured to say, most extravagantly perhaps, and perhaps not, that his ideas would precipitate a crisis in the world's history, wars ensuing such as never had been known before.⁸² The supreme result would justify all it cost, and would consecrate those who took part in the struggle. It is the bringing of death into connection with the aims we strive for, that makes us reverend (*ehrwürdig*).⁸³

Nietzsche was a passionate spirit and took his ideas greatly, and would have others take them so. He animadverts on the scholars who are content to sit in cool shadows; it is not enough, he says, to prove a thing, one must win men over or lift them to it.⁸⁴ We and our thoughts are not to be like shy deer hidden in the wood, but to go forth to conquer and possess. It may be left to little maidens to say, "good is what is pretty and touching"; to be really good is to be brave.⁸⁵ The time of war may not yet be come; Nietzsche is human enough, Christian enough to count it his happy fortune that he lives a preparatory existence and can leave to future man the conduct of actual conflicts;⁸⁶ but war in the large sense belonged to his nature. He might have said with Goethe:

Machet nicht viel Federlesen,
Schreibt auf meinen Leichenstein:
Dieser ist ein Mensch gewesen,
Und das heisst: ein Kämpfer sein!

⁷⁹ "Joyous Science," § 144.

⁸⁰ *Ibid.*, §§ 358, 114.

⁸¹ *Cf.* "Werke," XII., 207, § 441.

⁸² "Ecce Homo," IV., § 1.

⁸³ "Will to Power," § 982.

⁸⁴ "Zarathustra," II., xvi; "Dawn of Day," § 330.

⁸⁵ "Joyful Science," § 283; "Zarathustra," I., x.

⁸⁶ "Werke," XII., 209, § 442.

—and he wished to transmit a legacy of this spirit to his disciples. Zarathustra says, “Your war shall ye wage, and for the sake of your thoughts. . . . Ye shall love peace as a means to new wars—and the short peace more than the long. I counsel you not to work, but to conflict. I counsel you not to peace, but to victory. Let your work be a conflict, your peace be a victory; . . . Let your love to life be love to your highest hope, and let your highest hope be the highest thought of life! . . . What matter about long life! What warrior wisheth to be spared?”⁸⁷

Nietzsche had his dark hours, as the strongest have, and about details and methods he had no settled assurance; but his dominant mood was one of hope. Zarathustra scarcely knew how to live, save as a seer of things to come—so did the past oppress him; but atonement would be made for the shortcomings of the past and the great Hazar be finally ushered in.⁸⁸ “Have ye not heard anything of my children? Speak to me of my garden, my Happy Isles, my new beautiful race. For their sake, I am rich, for their sake I became poor; . . . what have I not surrendered? What would I not surrender that I might have one thing: *those* children, *that* living plantation, *those* life-trees of my will and my highest hope!”⁸⁹ One feels the full longing of a man’s soul (of one who is woman too in the great, divine sense of the word) in language like this. Yet it is not mere longing with Nietzsche. He speaks of the “unexhausted possibilities” of man and our human world. He is confident that in the long course of history the fundamental law will break through and the best come at last to victory—supposing that man with supreme determination wills their supremacy. “From you, the self-chosen,” says Zarathustra to his disciples, “shall a chosen people grow; and from it the superman.”⁹⁰ Indeed, the conditions for a change in the general attitude exist now—only the great persuasive men are lacking.⁹¹ And from the class of new moralists, or, as he daringly said, “immoralists,” he believed they would arise. “We immoralists,” he declares—and it is one of his proudest utterances—“are to-day the only power that needs no allies in order to come to victory: hereby we are by far the strongest of the strong. We do not even need falsehood: what other power can dispense with it? A strong allurements fights for us—perhaps the strongest that exists, the allurements of the truth.” And then disdaining that proud word, he

⁸⁷ “Zarathustra,” I., x (practically Common’s translation).

⁸⁸ “Zarathustra,” II., xx. Cf. “Werke,” 306, § 136. “Zarathustra,” IV., i.

⁸⁹ “Zarathustra,” IV., xi.

⁹⁰ “Beyond Good and Evil,” §§ 45, 203; “Zarathustra,” I., xxii, § 2; “Werke,” XIV., 71, § 137.

⁹¹ “Werke,” XI., 372, § 567.

adds, "The magic that fights for us, the Venus-eye that ensnares even our opponents and blinds them, is the magic of extremes, the allurements of daring to the uttermost."⁹²

Itself an extreme utterance, we say—but it may be safer to let the future decide that! In this strange world, the unexpected, the undreamed of, sometimes happens.

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ON THE NOTION OF INFINITY

WHENEVER a man writes a book to be read, he makes certain tacit assumptions with regard to the reader. He assumes, for example, a mind which can attend to things and relations between them, a mind which can choose among things, and which understands before and after. It would be absurd to tell a man, in substance, that before he can understand "before," he must first understand something else, and that after he understands this, he may be able to understand "after"; that if he will choose to listen you will tell him the meaning of "choose," and that certain relations among things will make clear to him what "things" and "relations" are. Naturally, in writing this paper on the notion of infinity, we shall suppose that the reader possesses such a mind, and the assumption gives the key to our argument. We shall make *choices* among the natural numbers 1, 2, 3 . . . ; some choices will be made *before* and others *after*, and it will turn out that the notions *choice* and *before and after* are essential to the notion of infinity.

But we must be on our guard in one respect at the outset. Difficulty arises from the use of certain phrases by men who best understand the infinity-concept, and if these phrases are misunderstood, it may be claimed that they lead to contradictions. We hear the phrase "when x is infinite" or "when x goes to infinity" as if infinity were a place where x might go and stay. We hear that there are "definite infinite numbers," and we interpret this to mean "there are infinite numbers that can be fixed by counting." Of course, such statements are contradictory, and it is useless to consider the question, "What finite number is infinite?"

We must ask about any statement, not only, "Is it true?" but, "What does it mean?" for it may easily happen that a statement is true with one meaning, and false with another, so that the statements, "It is true," "It is false," are equally correct and equally careless. To guard against such difficulties, let us introduce a sort of vocabulary

⁹² "Will to Power," § 749. In "Ecce Homo," III., ix, § 2, he says, in speaking of the new hopes and tasks for mankind, "I am their happy messenger" (*cf.* IV., § 1).

giving some of the terms that we shall use, together with their meanings for this paper.

We shall be concerned, first, with the *natural numbers*, 1, 2, 3, *et cetera*. These numbers are defined by the *counting process*, which is itself undefined except for the assumption that we may "count one more" than any number already defined. A number is said to be *greater* than another if it is defined by the counting process after the other; then the other is said to be *less* than the one.

Corresponding to the natural numbers we shall consider *sets* or *groups* of *elements*. The term group is undefined, but is used in the sense "a group of five chairs." In general, a group has *parts* or *subgroups* where the elements of the subgroup are some, but not all of the elements of the group; as, a group of five chairs has a subgroup of three chairs. Each group has associated with it a *cardinal number*, as the group of five chairs has associated with it the cardinal number, 5.

Groups are compared by the process of *one-to-one correspondence*. This term also is undefined, but is used in the sense of the old jingle

"I saw five brave maids
Sitting on five broad beds
Braiding broad braids,"

where there is a one-to-one correspondence between maids, beds, and braids.

A group is *finite* if its cardinal number is one of the natural numbers, 1, 2, 3, *et cetera*.

A finite group is said to be *less* than a second group if the elements of the first may be paired one-to-one with the elements of a part of the second.

We assume that a group may be formed by "adding one element" to any existing finite group.

With this vocabulary at our disposal let us go on to define an *infinite group*. We may give Cantor's definition,¹ "a group is said to be infinite if there is no finite group with whose elements the elements of the group may be paired one-to-one," or what is the same thing² "a given group is said to be infinite when, if *a* is any finite number that has been chosen, the group has a subgroup of *a* elements."

The word *any* as used in this definition must be distinguished from *some*. If "so-and-so is true of any element of a group," we know so-and-so will hold with regard to a chosen element before we choose the element. If "so-and-so is true of some element of a group" we do not know whether so-and-so will hold with regard to a chosen ele-

¹ "G. Cantor, "Zur Begründung der transfiniten Mengenlehre." *Math. An.*, Vol. 46, page 492.

² As may be shown, although it is not shown here.

ment until after we have chosen the element. Speaking loosely, *any* element of a group is an element that has not yet been chosen; *some* (a certain) element of a group is an element that has been chosen.

The number a of our definition is both any number and some number, according to the point of view. First, a group is supposed to be fixed according to some chosen law. With respect to all that follows the group is *some* group, and with respect to the group, a is *any* number, that is, a has not yet been chosen. But there comes a time when a is supposed to be chosen. With respect to all that follows, namely, the choice of the subgroup, the number a is *some* number, that is, with respect to the subgroup a is a number that has been chosen.

Then our definition means that the infinite group is chosen before the number a , and the subgroup is chosen after the number a .

This peculiar order of choices must be preserved in a definition of infinite group, for

(1) A *finite* group will fulfil all the conditions if both the group and the subgroup may be chosen after the number a , as follows: first, choose a , say, 20; then a finite group, say, of 30 things; then a subgroup of 20 things. The finite group of 30 things fulfils the conditions. And evidently, it does not matter how large a is taken. We could fulfil the conditions in the same way if a were chosen equal to a million or even a larger number.

(2) There is *no* group that will fulfil the conditions if both the group and the subgroup must be chosen before the number a . Choose, say, the group of finite integers and a finite subgroup at pleasure, say, the first million integers. Now suppose an opponent chooses the number a equal to a million and one. There is nothing to prevent his doing so, but in that case the conditions of the definition are not fulfilled, even by the group of finite integers.

The order of procedure prescribed by our definition is as follows: First, let the group be given according to a certain law; for example, let the group be the group of finite integers 1, 2, 3, . . . With the group defined we give our opponent a perfectly free choice of the number a . The group is infinite in case it has a subgroup of a elements no matter what number a happened to be chosen. Evidently, the group of finite integers has such a subgroup corresponding to any chosen a , namely, the group of the first a integers; if a is a million, the first million integers.

If some one objects that we have been talking only about finite groups and have not defined an infinite group at all, we may challenge him to produce a finite group which may be treated in the same way, namely, first, let the group be defined; second, give an opponent a perfectly free choice of the number a , and third, find in the given group a subgroup of a elements.

Beside the definition already given, Cantor gives the equivalent definition "a group is infinite if its elements may be paired one-to-one with the elements of a part of the group." But one might say, "who ever saw such a group?" It surely does not belong to our sense experience. If the definition is to have value, such a group must be shown to *exist*. Cantor says that the group of natural numbers is such a group because its elements may be paired one-to-one with the elements of the group of even numbers as follows:

$$\begin{array}{l} 1, 2, 3, 4, 5 \dots, \\ 2, 4, 6, 8, 10 \dots \end{array}$$

But no one has ever paired more than a finite number of the elements of these groups. Then Cantor's statement means, "if we choose any number we can find its double, and if we choose any even number, we can find its half," and we can perform this process (a finite number of times) as often as we like.

With a *finite* group, say, of 21 elements we may pair an element of a part with an element of the whole 20 times, if we wish, but not more than 20 times. On the other hand, with an infinite group we do not have to stop pairing an element of the part with an element of the whole unless we choose to do so, that is, in case of the infinite group, there is no finite number that corresponds to the number 20, above. And yet it is not exact to say that we can pair *all* the elements of the infinite group with their doubles, because all the elements of the infinite group can not be chosen.

To be sure, Cantor speaks of "the totality of all finite numbers," but he does not mean "all numbers that have been defined" or "are supposed to have been defined," but rather those that *may* be defined. We can not suppose that all the finite numbers have been fixed. What has been fixed is a law by which *may* be fixed as many finite numbers as we wish. Then, the difference between finite and infinite depends fundamentally on the difference between what has been done and what may be done. It demands for its understanding a mind such as we assumed at the outset, a mind that can choose among things with a sense of before and after in its choices.

This relation of before and after will serve also to interpret Cantor's proof that the set of real numbers between zero and one is non-denumerable.³ The proof runs as follows: Suppose that a law could arrange the never-ending decimals⁴ between zero and one in a

³ A denumerable set can be put into one-to-one correspondence with the set of natural numbers 1, 2, 3 In such a set, each element has a definite place with reference to the other elements, a third place or a fifth or tenth place. The set of even integers is denumerable because each number has its place, for example, the number 24 has the twelfth place.

⁴ The digits are supposed to follow one another according to a fixed law,

denumerable order corresponding to the numbers 1, 2, 3, . . . as follows:

- (1) $\cdot a_1 a_2 a_3 a_4 \dots,$
- (2) $\cdot b_1 b_2 b_3 b_4 \dots,$
- (3) $\cdot c_1 c_2 c_3 c_4 \dots,$
- (4) $\cdot d_1 d_2 d_3 d_4 \dots,$
-

where the letters stand for digits, for example, $\cdot a_1 a_2 a_3 a_4 \dots$ might be $\cdot 1587 \dots$. Then there is at least one never-ending decimal unaccounted for in the array, namely, $\cdot a'_1 b'_2 c'_3 d'_4 \dots$, where a'_1 is a digit that is *not* a_1 , b'_2 is not b_2 , *et cetera*, because this decimal differs from any in the array in at least one place; it differs from the first decimal in the first place, from the second decimal in the second place, and so on.

But, the objection is raised, "Does not this exception number occur lower down in the array?" If it occurs in the array it must have a definite place corresponding to one of the natural numbers 1, 2, 3, . . . Suppose that this place is the n th. n is a fixed number, since the denumerable order is supposed to *have been chosen*. Since the decimals are never ending, the n th decimal has an n th digit, and this digit can not belong both to the n th decimal and the exception number by the law of formation of the latter. Therefore, if we *fix* any denumerable order of never-ending decimals, we can *then* find a never-ending decimal which has no place in the order. In fact, the very writing of a number that has a place in the order helps to create a number that has no place in the order; and just so long as there are numbers with definite places, just so long is there at least one number without definite place. According to the conditions, the order has been chosen "before" and the exception number may be chosen "after," and the theorem is proved.

The rôle played in modern analysis by this concept of before and after may be illustrated further from the theory of limits. Perhaps the simplest illustration is the theorem that the limit, as x becomes infinite, of the fraction $1/x$ is zero. The theorem *means* (and here lies the difficulty) "if a constant e has been chosen, no matter how small, then there is a constant x_1 , such that when x is greater than x_1 , $1/x$ is less than e ." The theorem is *true*, because, *after e has been chosen*, we may choose $x_1 = 1/e$; and if x is greater than x_1 , then $1/x$ is less than e . In other words, the larger the denominator the smaller the fraction, and we may take the denominator of the fraction $1/x$ large enough to make the value of the fraction as small as we please. If x is greater than 10, $1/x$ is less than $1/10$; if x is and the phrase "never-ending decimal" means strictly the limit of a decimal of n digits as n becomes infinite.

greater than 100, $1/x$ is less than $1/100$; if x is greater than $1/e$, $1/x$ is less than e .

An imaginary opponent objects, "Of course, you can do all this after e has been chosen, but suppose e had not been chosen first. I might have chosen e differently." We reply, "If e had not been chosen first, then our statement would not have the meaning which we have assigned to it, for it is precisely in this choosing first or second that the essential of the concept lies. You had a perfectly free choice of e . Why didn't you make the most of it?"

The idea of before and after enters also into the notions of function, continuity, uniform continuity, convergence, uniform convergence, *et cetera*, of which we may not treat. It is evidently the idea of *time*, not in the sense of measured time, nor in Bergson's sense of "duration," but in the sense that one thing is done or supposed done before another, as one move is made before another in a game of chess. If the choices of numbers are actually made, the time in question is real; if the choices are only supposed to be made, the time is fictitious as a dream time is fictitious, but as the *idea* of time is necessary to the meaning of a dream, so the idea of time is necessary to the concepts of mathematics with which we have been occupied.

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REVIEWS AND ABSTRACTS OF LITERATURE

Henri Bergson: A Study in Radical Evolution. EMIL CARL WILM. New York: Sturgis and Walton Company. 1914. Pp. xv + 193.

Henri Bergson: An Account of His Life and Philosophy. ALGOT RUHE and NANCY MARGARET PAUL. London: Macmillan and Company. 1914. Pp. vii + 245.

The disposition toward Bergsonism in these two books is a contrast, and this enhances their interest, though neither lacks interest on its own merits. They are instructive studies, and more: each is literature of superior elegance and charm. Otherwise they are as different from each other as possible.

The book by Professor Wilm is the lighter in every way, of little more than half the length of the other, and composed in a style exceedingly easy to read. Rather than the study or class-room, I should say that the congenial environment for its reading is a hammock. Intention to deal with "the subtler complications" of Bergson's thought is explicitly renounced in the Preface; and of the classes of people whom Bergsonism interests, "the reading laity" and "scientists and professional students of philosophy," the book is addressed to the first. The Preface, taken by itself, suggests, what the succeeding text does not, that the author regards Bergson's work very lightly—as the *dernier cri* from Paris,

and little more. "Bergsonitis, which seems to be spreading around the world, is in most cases undoubtedly to be diagnosed as a purely subjective malady, due either to a process of auto-suggestion, or, what is more likely, to the persistent suggestive influence of a misguided public press."

Nevertheless, the depreciatory note of the Preface is not the key-note of the book. Attention is not focused on criticism. The religious bearing of Bergsonism receives the author's willing sympathy, and serves as text for two concluding chapters, "The Value of Life" and "The Problem of Death." "The real foe of religion . . . is not naturalism, . . . but absolutism in every form," which "leaves man out of account." A "hopeful interpretation of reality" must provide for the possibility of the achievement of human ends, through whatever struggle and pain. And Bergsonism does provide for this in all three of its salient doctrines, creative evolution, indeterminate teleology, and human freedom.

In criticism, the main point is the unreal abstractness of Bergson's formula for reality, namely, "pure becoming." "Pure change, strictly taken, is entirely inconceivable. . . . If I simply have before me first *A* and then *B*, *A* and *B* being absolutely devoid of any point of community [identity within the change], there is no sense in saying that I have apprehended a process of change" (pp. 121, 122). Moreover, "That something shall persist through the successive mutations which reality undergoes seems indeed to be absolutely demanded by other parts of Bergson's system. . . . Side by side with the doctrine of universal mutation, we have what seems to be the precise opposite of it, the notion, namely, of universal conservation. . . . Nothing is ever abandoned and nothing lost" (pp. 125, 126).

The work of Algot Ruhe and Nancy Margaret Paul is written on a different plan. It is a wonderful digest of Bergson's complete works. Its exceeding merit is in two particulars: the unequalled comprehensiveness of the material presented,—decidedly surpassing the comprehensiveness of any other compendium of Bergsonism—and secondly the graceful lucidity of the presentation. Everything is here, in 240 pages, set forth, however, with such leisurely elegance that there is not a hint of compression, with such perspicacity that Bergson's paradoxes are almost intelligible. The following passage is translation, so closely it follows Bergson's French, but it is marvelously inspired and free from the letter that killeth:

"Instinct, in short, is sympathy, and if its scope could be sufficiently enlarged and reflexion brought to bear upon its operation it would put into our hands the key of life, just as intellect at its highest may give us the key to the comprehension of matter. But now each is turned in its own special direction. And whereas intellect, through the medium of science, its creation, is now leading us deeper and deeper into the secrets of inert matter, were we to follow intuition,—that is to say, an instinct become conscious of itself, set free from slavery to the exigencies of action, and able to reflect upon what it sees—we might be led into the depths of life itself" (p. 224).

The book is work of disciples as wholly devout as LeRoy. But there

is no adulation; there is almost nothing about Bergson; from first to last it is the doctrine itself. This is true in spite of a biographical chapter of 53 pages. "His life is to be found in his works"; and the biography is little more than reports of addresses and occasional papers hitherto published in no book and not included in other essays in Bergsonism.

Of its class, as a synoptic presentation of Bergsonism, this work far surpasses any other that I know. There is a very good portrait of Bergson. The press-work is beautiful. Each of these books has an index.

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La Question Sociale et le Mouvement Philosophique au XIX^e Siècle.
GASTON RICHARD. Paris: Colin. 1914. Pp. xii + 363.

Owing to Kant's emphasis on the problem of the relation of thought to action the social question occupied an increasingly prominent place in the philosophy of the nineteenth century. The history of ethical theory during this period is hardly intelligible without a knowledge of contemporary phases of the social question. For Professor Richard this connection is particularly close, since he contends that the social question is essentially moral rather than economic in character. He undertakes to show that philosophical analysis of the springs of conduct alone can refute the *immoralisme* of the economic optimism of the first half or the materialism of the scientific socialism of the latter half of the century. Since the social question is a moral question, only those thinkers are in the position to make any contribution of value who emphasize justice or the problem of evil. The author omits, therefore, the French eclectics, the German pessimists, as well as Nietzsche. For Schopenhauer the social problem admits of no solution since existence itself is essentially evil. Nietzsche practically negates the social question in his doctrine of the "will to power."

The year 1848, when Marx and Engels issued their famous pamphlet "Manifest der Kommunisten," divides the century into two periods, dominated by different tendencies. During the first period the economic individualism of the English school of Adam Smith, Malthus, and Bentham, introduced into France during the second decade, was opposed by the traditional school of De Maistre and Lamennais and later by the positivists. A corresponding reaction from the individualism of Kant took place in Germany under the leadership of Fichte and Hegel. The second period is marked by the opposition of the philosophers to the scientific socialism of Marx and Engels. Herbert Spencer uttered a passionate protest against the communism of the scientific socialist which threatened to submerge the individual. The Swiss philosopher Secrétan, a disciple of Schelling, defended moral and spiritual values against the determinism and naturalism of both German socialism and French positivism. Finally, scientific socialism found vigorous opposition from the Neo-Kantians represented in France by Renouvier and in Germany by Cohen and Lange, Stammler and Natorp. It is with this school that Professor Richard appears to have the most in common.

Corresponding to these two periods Professor Richard's book falls into

two parts, the first dealing with the relations of philosophy to economic individualism, the second tracing its connections with scientific socialism. In chapter one of the first part the writer indicates in illuminating fashion how the moral idealism of Kant, which insisted upon the autonomy of the individual, condemned war as the source of all evil and looked towards a regime of "perpetual peace" assured by a federation of nations, was gradually nationalized. Hegel, the philosophical exponent of Prussian absolutism, saw in war the sole means by which the Idea could realize itself, in "perpetual peace" a paradox, and denied the possibility of international justice since each state's own sovereignty excludes the jurisdiction of others. Here is the philosophical forecast of militant Pan-Germanism. Chapters two and three trace the development of the French traditional school from De Maistre to Lamennais, whose merit it was to have "restored the value and the rôle of man's moral freedom and to have identified progress with the struggle against evil" (p. 96). Chapters four to six indicate the connection between the positivists and the Saint-Simonists and Benthamites; of particular interest is the discussion of the relations between Comte and John Stuart Mill. The concluding chapter of part one traces the gradual change between 1789 and 1848 as to the relative importance of individual rights and the authority of the community. In chapter one of part two the author shows how scientific socialism with its theories of economic values, its Hegelian historical determinism, and its emphasis of class conflict gave rise to an entirely new set of problems. The next two chapters give the reactions of Herbert Spencer and Secrétan to the challenge of the scientific socialists; strange to say, Richard thinks that both were inspired by Schelling. The two concluding chapters are devoted to Neo-Kantianism. A bibliography of the sources is appended.

Professor Richard has produced a solid and scholarly piece of work. The reviewer finds himself thoroughly in sympathy with the writer's general conclusions. There is no other work that offers within the same compass a better orientation upon the period and the problem concerned.

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A History of Psychology, Ancient and Patristic. GEORGE SIDNEY BRETT.
London: George Allen and Company. Pp. xx + 388. 1912.

This excellent book was needed. Siebeck's "Geschichte der Psychologie," though not superseded, dates from well back in the last century, and the progress of investigation in many fields, notably in that of the pre-Socratics, called for a new synthesis. Mr. Brett has accomplished his task with all the virtuosity of the trained English prize man who puts the facts of the Germans better than they can do it for themselves. It is the neat craftsmanship that we find in Jebb's "Homer and his Attic Orators," in Gardiner's and Jevon's "Greek Antiquities," and Whibley's "Companion to Greek Studies." It is not a work of startling originality or of minute and speculative erudition. But Mr. Brett's scholarship is quite sufficient for his purpose. He controls his secondary authorities by study of the texts, he supplies in footnotes the indispensable technical

terms, and the appended bibliography and notes enable the serious student to follow him to his sources.

The book is very readable. The style is admirable in point, precision, and lucidity. And the trenchant good sense everywhere displayed is a refreshing relief from the abuse of conjecture and anthropology that is the note of too many of the most conspicuous successes of recent English scholarship.

It is impossible to resume so condensed and pregnant a résumé. Mr. Brett has no thesis to sustain, no demonstration that the moon is made of green cheese, which the reviewer can impart to the public as his message. He evidently composes with his eye on the object, that is, on the original texts, and is capable, when the subject demands it, of thinking in Greek or Latin and not in English translation. What distinguishes his book from the compilations of the bookmaker and the baseless fabrics of the hypothesis-monger, is the hundreds, perhaps thousands, of short pointed sentences that put the facts or the graduated probabilities just right, instead of wrapping them in a fog of equivocal abstraction or distorting them in misplaced focus or false perspective. There are, of course, some statements which a special student of Plato and Aristotle is tempted to challenge. But they involve minutiae of language and interpretation too technical for discussion here, and are evanescent in the general rightness and sanity of the whole.

The earlier chapters are especially good. The fifteen introductory pages on the character of primitive thought may be described, according to the critic's preferences, as either the most expeditious clue or the most effective antidote to the vast literature of speculative anthropology that blocks the way to the study of Greek life and literature and philosophy. Mr. Brett has studied this literature. But he has also read and understood his Homer, and Homer saves him. Admirable, too, is the sketch of the pre-Socratics. Its sober estimates of probability may be commended to our scientific brethren as a check on the Leweses, the Langes, and the Drapers, in whom they too lightly put their trust, and it will save even the readers of the picturesque and brilliant Gomperz from many a misapprehension.

In the brief chapter on the Sophists, Mr. Brett succumbs to the modern fashion that rehabilitates these gentry and takes Protagoras and Gorgias a little too seriously. They may have been all he says, but there is little or no evidence for it, and to attribute to Protagoras everything that Plato's "Theætetus" suggests to a modern pragmatist, is begging the historical question.

Thus far with the aid of Diels and Rohde Mr. Brett could control his texts completely. He could hardly be expected to master in its detail the enormous literature from Plato through Aristotle, the Stoics, Epicureans, neo-Platonists, and Christian fathers, down to Saint Augustine. His method seems to have been to select certain texts as, *e. g.*, Plato's "Phædo," "Philebus," and "Timæus," and Aristotle's "De Anima," for independent analysis, and to summarize secondary authorities for the rest. This procedure involves some omissions and inaccuracies which, however, do not appreciably impair the general soundness and interest of the

work. It is, and is likely to remain for some time, the best introduction to the study of ancient psychology in any language.

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JOURNALS AND NEW BOOKS

REVUE PHILOSOPHIQUE. January, 1915. *La contagion de la folie* (pp. 1-38): G. DUMAS. - This article ascribes the hypothesis of the contagion of insanity to an insufficient analysis of the pretended cases of such contagion. The expression has been used "to designate two phenomena that are successive or at least distinct: first, a psychopathic trouble, occasioned by a moral cause; second, the communication of ideas and images of delirium, from which results an apparent similarity of the two morbid tableaux." *La paramnésie et les rêves* (pp. 39-48): A. L. D. - A description of personal impressions of the connection of dreams and paramnésia. *Revue Critique. La question du hasard*: DARBON. *Revue générale. Les revues allemandes de Psychologie en 1911 et 1912*: FOUCAULT. *Analyses et comptes rendus. E. Régis et A. Hesnard, La Psychoanalyse*: TH. RIBOT. J. Wilbois, *Les nouvelles méthodes d'éducation*: L. DUGAS. *Revue des Périodiques. Nécrologie* (François Pillon). Marshall, Henry Rutgers. *War and the Ideal of Peace*. New York: Duffield and Company. 1915. Pp. 234. \$1.25.

NOTES AND NEWS

JOINT meetings of the Aristotelian Society, the British Psychological Society, and the Mind Association, were held on July 3 and 5, in London. At the meeting on July 3 Professor G. D. Stout read a paper on Mr. Bertrand Russell's Theory of Judgment. At the meeting on July 5 a symposium was held on the Import of Propositions by Miss Constance Jones, Dr. Bernard Bosanquet, and Dr. F. C. S. Schiller.

THE graduate subject of education at the Johns Hopkins University, which was formerly associated with philosophy and psychology, and more recently with philosophy, has been made a separate department. The title of the chair occupied by Professor Edward F. Buchner will be changed to that of education from the former title of education and philosophy. The conditions of admission to candidacy with education as the principal subject for the degree of Master of Arts and Doctor of Philosophy will continue to be the same as in the other departments.

DURANT DRAKE (Ph.D., Columbia), associate professor of ethics and the philosophy of religion at Wesleyan University, Middletown, Connecticut, has been appointed professor of philosophy at Vassar College.

J. FREDERICK DASHIELL (Ph.D., Columbia), instructor in philosophy at Princeton University, has accepted an appointment at the University of Minnesota for the next academic year.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

THE LOGICAL-ANALYTIC METHOD IN PHILOSOPHY¹

THIS is not the first time that a philosophical work, written in simple language and addressed to a wide public, has claimed for itself a revolutionary importance. It is indeed natural that the would-be revolutionist should seek the approval of the larger public, by way of appeal from the almost certain condemnation of the narrower technical public. Besides, the revolutionist has not a very high respect for the narrower public. He is frankly of the opinion that by far the greater part of its traditional pretensions are unfounded; and that a prosperous new beginning is better to be hoped for from those who are free from professional trammels. Descartes's "Discourse on Method" is the illustration *par excellence*.

In this volume, as in Descartes's great essay, it is a method that we are primarily called upon to examine—the "logical-analytic" method, as it is called. Mr. Russell writes: "This method, of which the first complete example is to be found in the writings of Frege, has gradually, in the course of actual research, increasingly forced itself upon me as something perfectly definite, capable of embodiment in maxims, and adequate, in all branches of philosophy, to yield whatever objective scientific knowledge it is possible to obtain" (p. v).

In order to understand the extent of this claim we should know what our author means by "philosophy." But upon this point no definite and consistent answer is given. "Philosophy" has long been for Mr. Russell an *extra word*, to which nothing in his thought accurately corresponds. When he wrote this book he was evidently drifting toward the identification of philosophy with logic, to which he later committed himself. In the Herbert Spencer lecture (delivered in November) he said: "Philosophy is the science of the possible"; and added: "Philosophy, if what has been said is correct, becomes indistinguishable from logic as that word has now come to be used" (p. 17). In the present volume he had said that "every philosophical

¹ Bertrand Russell, "Our Knowledge of the External World as a Field for Scientific Method in Philosophy." Chicago: Open Court Publishing Company. 1914. Pp. ix + 245. Reference is also made to Mr. Russell's essay, "The Relation of Sense-data to Physics," in *Scientia*, 1914, and to his Herbert Spencer Lecture on "Scientific Method in Philosophy," Oxford, 1914.

problem, when it is subjected to the necessary analysis and purification, is found either to be not really philosophical at all [*sic*], or else to be, in the sense in which we are using the word, logical." The definite identification of logic and philosophy would, however, make nonsense of some of the most prominent theses. What is meant, for example, by the phrase, "all branches of philosophy," in the passage quoted above? Metaphysics and epistemology would seem to be included if anything is; but no one insists more strenuously than Mr. Russell that neither of these is to be included in, or confounded with, logic. And what becomes of the statement that "logic is the central study in philosophy," since "it gives the method of research in philosophy, just as mathematics gives the method in physics" (p. 239) ?

On the whole, we must be content to take the term "philosophy" somewhat loosely, as indicating those parts of what has traditionally been called "philosophy," which approach most closely the generality of logic. This is to be understood as excluding, for example, all questions which have "what is called a human interest," as falling within the scope of special sciences, and as having to be decided, if at all, by empirical evidence (p. 17). The exclusion of empirical evidence must not, however, be taken too strictly. Otherwise, on Mr. Russell's own principles, we are reduced to pure logic at once (p. 53).

The method for which so much is claimed is, in its broad outlines, that of Descartes, as explained in Part II. of the "Discourse on Method." The obvious problems, from which philosophy sets out, are invariably complex; and the initial data are complex and confused. "These data are to be reduced to premises that are as nearly as possible simple, precise, and mutually independent. In this process of analysis, the original difficulty resolves itself into a number of questions of increasing abstractness. The analysis does not, however, proceed *ad infinitum*. There is a final stage in which difficulties vanish, and which is followed by a comparatively easy synthesis.

But there are differences from Descartes. For Descartes the process of analysis is a mere preliminary to the task of philosophy (or science), which is synthetic; whereas for Mr. Russell it is the analysis that is philosophical, while the synthesis is the work of mathematics—the term "mathematics" being taken, as he says, "in a somewhat liberal sense" (p. 211). For Descartes the analysis issues in a set of self-evident propositions. Mr. Russell recognizes that it may issue in propositions that are more or less open to doubt; and it may be added that he has elsewhere pointed out that in the case of logic the ultimate premises are less evident than many of their consequences, and hence rest on evidence that is essentially *inductive, i. e.*, on the fact that these later propositions can be deduced from them.

Mr. Russell's theory is further distinguished by his holding that

the last stage of the analysis is performed in a manner very different from the preceding stages. "When everything has been done that can be done by method, a stage is reached where only direct philosophic vision can carry matters further. Here only genius will avail. What is wanted, as a rule, is some new effort of logical imagination, some glimpse of a possibility never conceived before, and then the direct perception that this possibility is realized in the case in question" (p. 241). In this connection we note Mr. Russell's view of the value of logic (in its recent developments) as an aid to the imagining of abstract hypotheses for examination. Until recently logic was so meager that it rather confined men's view of alternative possibilities, than broadened it. Now, however, "it gives the method of research in philosophy."

I believe that every competent judge will acknowledge the very great value of the logical-analytic method. What it has done for the systematization of the mathematical sciences is ample proof of that. I question, however, the accuracy of Mr. Russell's account of the method, and also his estimate of its value in philosophy.

1. To speak without qualification of "the very last stage of the analysis" is misleading. So far as we are aware there is no result of analysis that sets a definite limit to the process. This is so very well known to Mr. Russell that I wonder at his unguarded language. A particular analysis is concluded when indefinables and postulates are reached, which, after long study, we find ourselves unable to reduce or simplify. But the conclusion is only provisional. Moreover, there appears to be no thoroughgoing contrast between the last stage of an analysis and the preceding stages. The boundary-line between what can be done by method and what requires genius surely does not lie here. The whole process is a continuous one; and, as I have just remarked, what has for a time been regarded as final may well enough yield to further analysis. Again, there is no division, such as Mr. Russell's account suggests, between the work of analysis and that of synthesis. Every tentative analysis is at once tested by synthesis; and the synthesis may proceed until the analysis is shown to have been defective, *i. e.*, until contradictory conclusions are reached, or it is found impossible to infer from the assumptions in question some proposition that they were intended to prove. In such case a correction of the analysis is called for—a new labor of analysis. This alternation of analysis and synthesis may take five minutes or ten centuries; that is unessential.

2. The problem which the logical-analytic method undertakes to solve is never, so far as we know, limited to a single solution. In metrical geometry, for example, there is a very wide choice of indefinables. In logic itself the choice of indefinables is very free. And

the primitive propositions vary accordingly. Mr. Whitehead and Mr. Russell have, it is true, committed themselves to the view that the order of logic is at least so far determined that the theory of the implications of propositions must stand first. Even this appears to me to be very doubtful for reasons which I stated in a recent paper in this JOURNAL. It may be added that even if a unique solution of a logical-analytic problem were found, no method of showing its uniqueness is known.

Thus the knowledge which the logical-analytic method gives is not nearly so profound as at first sight appears. The simples to which it leads are only simple from the assumed point of view. They may from other points of view be of extraordinary complexity. In the case of logic this is so strikingly true, that the distinguished French logician, M. Louis Couturat, has come to the conclusion that the analytical problem admits of no solution of any value. Logic, he declares, must be content to remain illogical. I think that he exaggerates; but that there is some excuse for his opinion is evident from an examination of the "indefinables" of such a work as "*Principia Mathematica*." "Elementary proposition," and "elementary propositional function" are among the first that Mr. Whitehead and Mr. Russell introduce. The logical-analytic method must, in short, be used with the utmost caution, or it will give rise to the most serious illusions.

I may add that, so far as I am aware, no general method has yet been devised by which the results of alternative analyses can be combined in a single comprehensive and systematic statement.

3. How far modern logic may be of assistance in the use of the logical-analytic method I do not know. The method is, of course, used a great deal in the study of logic itself; and the experience thus gained is doubtless of value elsewhere; but I doubt whether it is much more valuable than a similar experience gained in arithmetic or geometry. Mr. Russell claims, however, that the knowledge of logical forms may be directly serviceable in philosophy, as an "inventory of possibilities, a repertory of abstractly tenable hypotheses,"² much as the more advanced parts of mathematics have provided an abstract framework for the physical sciences. In my opinion the value of logic as such an inventory is very slight, and the attempt so to use it must inevitably lead to a barren scholasticism—if not worse. It must be admitted, however, that sound logic is bound to be more helpful, and much less hurtful, than the unsound logic which our academic traditions still support. But, at the best, I gravely question whether the fitting of facts into frameworks is going to be the secure method of philosophy. Perhaps after we have considered Mr. Russell's theory

² Herbert Spencer Lecture, page 18.

of the construction of the physical world this questioning will not seem over-skeptical.

Before taking up any particular application of the method, a certain maxim, upon which Mr. Russell lays great stress, calls for comment. This is Occam's razor, "Entities are not to be multiplied without necessity"; which Mr. Russell more distinctly formulates as follows: "Wherever possible, logical constructions are to be substituted for inferred entities"; and which he declares to be the "supreme maxim in scientific philosophizing."³

This is, indeed, an important maxim, but it is not without its dangerous side. The fact that a certain logical construction has been effected does not by any means imply that the entities assumed at the beginning have any better claim to reality than those that have been replaced by the construction. It is not alone that the assumed entities may themselves be displaced by constructions in yet other terms. The original process of construction may, perhaps, be reversed, the entities which it discarded being now assumed as real, and those formerly assumed being thrown out as fictitious. At the same time, when a particular mode of construction is known, there is a very strong tendency to regard its order of logical priority as an objective order; and the rationalistic tradition is all in favor of yielding to this tendency. But to yield is to fall into fallacy. The only valid ground for holding to a single order of construction would be the indubitable fact, that the entities from which the start was made were directly given in our experience or could be safely inferred from entities so given. If a set of entities is assumed on insufficient evidence,⁴ and the construction based upon them is persisted in obstinately and with disregard of the possibility of alternative constructions, a dangerous illusion results.

Now it is true that certain constructions can be based upon the bare assumption that something exists, no matter of what sort. But these constructions are confined to pure mathematics (including, of course, logic). All constructions that extend beyond the range of pure mathematics require the assumption of distinguishable and recognizable entities.

The only entities which Mr. Russell assumes as given, in his construction of the external world, are sense-data standing in certain relations (such as resemblance and some spatial and temporal relations). In addition, he accepts, as inferred entities—inferred from

³ In the *Scientia* article, page 9.

⁴ I purposely avoid the question, whether sufficient evidence is procurable; and also the further question, how, on the supposition that no such evidence is procurable, the common-sense notion of separate and independent existence may profitably be modified.

testimony, the validity of which rests ultimately on an argument from analogy—sense-data that are perceived by others; though he confesses that his scientific ideal would call for the questioning of this inference and the construction of a solipsistic universe. Furthermore, he accepts, as inferred entities, "*sensibilia*" (*i. e.*, entities which are sense-data, if some one is aware of them) of which no one is actually aware. In this latter case no hint of the mode of inference is anywhere given, and it may safely be said that, on Mr. Russell's principles, no inference affording any reasonable probability is possible. However, he speaks of these *sensibilia* as "a hypothetical scaffolding, to be used while the edifice of physics is being raised, though probably capable of being removed as soon as the edifice is completed."⁵

Let us consider this list of assumed entities, beginning with the unperceived *sensibilia*.

It may well appear strange that a set of entities, so doubtfully inferred, should be used in the construction of the physical world, of the existence of which we have none of us more than the very slenderest doubt. Mr. Russell gives as his reason "that the inferred entities should, wherever this can be done, be similar to those whose existence is given, rather than, like the Kantian *Dinge an sich*, something wholly remote from the data which nominally support the inference."⁶ But the evident fact is that Mr. Russell's unperceived *sensibilia* are themselves mere *Dinge an sich*. Their resemblance to actual sense-data is a verbal figment. As Mr. Russell clearly states, our actual sense-data vary with a multitude of physical and physiological conditions. The sugar that is white to one sense is sweet to another; and the whole landscape changes color when looked at through blue spectacles. Now the unperceived *sensibilia* are *sensibilia* for which the physiological conditions of sense-data are absent; and, on Mr. Russell's principles, these conditions can not be supplied without changing the *sensibilia* themselves. They are not to be represented as colors or smells or tones or pressures, or even as pleasant or unpleasant. They must, with scientific prudence, be regarded as *at least* as different from all our sense-data, as cold is from middle C, or pain from a hue of the spectrum. Nay, they must be regarded as immeasurably more different. Even the statement that they *become* sense-data under certain conditions is an exaggeration. They become such *at most* as the white becomes sweet when you put the sugar in your mouth. There is no ascertainable or imaginable continuity. All that can properly be said is that they are *replaced* by sense-data under the appropriate conditions. They are things-in-themselves. And hence, in advance of any examination of Mr. Russell's construction of the

⁵ *Scientia*, Vol. XVI, page 11.

⁶ *Scientia*, Vol. XVI, page 10.

physical world, we may confidently predict that every use that is made of these *sensibilia* must be fallacious. Several reviewers, who have identified Mr. Russell's standpoint with Berkeley's, have not done honor to Berkeley's memory.

The assumption of sense-data as indubitably given entities stands upon a different footing; and though there are serious reasons for questioning it—which need no mention here—it has been, and still remains, an important working-hypothesis. If it be not strictly correct, it is at any rate very simple and facilitates a schematic description of important classes of facts. One merely deprecates the narrowness of outlook which would base upon such a foundation a scientific ideal of solipsism.

Here let me make one point clear. The assumption of sense-data may be taken to mean merely the assumption that there are entities (other than mental acts, let us say) of which we are directly and indubitably aware. Sometimes, I suspect, Mr. Russell intends no more than this. But when that is the case his theory of physics is left without support. If constructions are to have more than an abstract logical significance, the assumed entities must have definite character and interrelations. And so, of course, have the sense-data of Mr. Russell. For example, Mr. Russell adopts without the slightest hesitation a nativistic theory of visual space perception. By this I mean, not that he supposes we have an inborn capacity for seeing physical space-relations, but that, according to him, visual sense-data have spatial relations, such as inclusion and similarity of shape, which are psychologically primitive data of our knowledge. This, I say, he takes for granted as if it were an incontestable fact. The possibility that an experience of eye-movements is incorporated in the perception of such relations does not disturb him. Mr. Russell has read a fair amount of psychological literature, I believe; and he is ready with his contempt for those who, like Kant (p. 112), are ignorant of psychology. But, if I am right, he himself is far from having acquired good judgment in this field. And this is not to be wondered at. The discipline of psychology—the most empirical of sciences—and the discipline of mathematics are so divergent, that a real competence in both subjects is almost more than one man can hope for.

Let us turn to the illustrations of the logical-analytic method upon which Mr. Russell relies to show its value. These fall into two classes, one drawn from the field of pure mathematics, the other from that of physics.

The first class consists of Frege's general theory of cardinal numbers and Cantor's theory of infinite cardinal numbers and of continuity. These are assured accomplishments of the human spirit, and are

indeed sufficient to show the value of the method in this field. Mr. Russell's account of Frege's theory—which was also independently worked out by Mr. Russell himself—is in his best style, simple and crystal-clear.⁷ That of Cantor's theory is very incomplete, even so far as the essentials go; but I dare say that in a public lecture it would have been hard to do more. It is a great pity that no elementary presentation of this part of arithmetic has yet been published. Of all the newer developments of mathematics it is the one that calls for least in the way of previous knowledge, so that it lies within the reach of the ordinary sophomore; and its philosophical importance—if only in enabling us to avoid a host of common fallacies—is very great indeed.

The other class consists of the above-mentioned construction of the physical world—which gives its title to the volume—and a special analysis of the notion of cause. The latter I shall not have space to discuss. The former has been restated in a paper entitled "The Relation of Sense-Data to Physics,"⁸ and as this is the version more especially intended for scholars I shall make frequent reference to it. It should be observed that Mr. Russell claims no finality for his theories; but he believes "that where they are found to require modification this will be discovered by substantially the same method as that which at present makes them appear probable"; and he offers them as illustrations of method. I shall take the theory of physical space for special examination, and shall try to make clear that, so far from being probable, it is altogether unsound, and only too well illustrates the insufficiency of mathematical methods in philosophy.

I am far from wishing to call in question the general position that the physical world is a construction, not an inference (as Mr. Russell has hitherto supposed). That is doubtless correct. Moreover, for the sake of argument, I propose to accept Mr. Russell's data and consider only the validity of the construction.

At the outset a certain superficial difference between the two accounts of the construction must be noticed. The account in the book confines itself, "for the sake of simplicity," to the sense of sight. The account in *Scientia* supposes that the correlation of the several sense-spaces into a single "private space" has been effected; and this private space, rather than mere visual space, is taken as the

⁷ One point calls for remark. Frege and Mr. Russell treat a cardinal number as a class of classes. They might equally well have treated it as a property of properties, *i. e.*, as a propositional function satisfied by propositional functions. It is quite as easy to define the "similarity" of two functions as the "similarity" of two collections (p. 204); and in the present state of mathematical logic I should suppose that there might be some convenience in this mode of procedure.

⁸ Published last year in *Scientia*.

point of departure. The difference is of even less moment than might be supposed; for in *Scientia*, as in the book, it is by means of sight alone that the whole construction operates.⁹

In a private space a collection of sense-data are ordered, which are called a "private world," or "perspective." The latter term is especially supposed *not* to suggest that there must be a percipient. The problem of the construction, as Mr. Russell views it, is: (1) To correlate as far as possible the contents of different private worlds; (2) to arrange perspectives in a three-dimensional, continuous (or approximately continuous) space; and (3) to correlate this "perspective-space" with the various private spaces.

(1) ". . . There is absolutely nothing which is seen by two minds simultaneously. When we say that two people see the same thing, we always find that, owing to difference of point of view, there are differences, however slight, between their immediate sensible objects" (p. 87). This assertion, as it stands, goes far beyond the evidence. It is indeed improbable that any two complex percepts, present to different minds, are exactly alike; but that the same elementary *sensibile* can not be a datum to two people at once is unproved. Mr. Russell might have assumed, as a working-hypothesis, that even though a *sensibile* present to one mind were exactly similar to a *sensibile* present to another mind, the *sensibilia* would be numerically distinct. Let us make this assumption, and proceed.

Two private worlds (we are told) may contain very similar *sensibilia*, arranged in an identical or closely similar fashion. This we know from testimony—the value of which we are assuming—as well as from our own movements. Hence it is often possible to correlate *by similarity* many contents of one perspective and many of another. *Sensibilia* thus correlated are called "appearances of one thing," the "thing" being the class of correlated *sensibilia*. For the sake of argument, let all this be granted.

(2) Private worlds, or perspectives, are now to be ordered by means of the *similarity of the correlated appearances*. "Suppose,

⁹ Mr. Russell evidently regards this emphasis upon vision as a mere matter of convenience, and believes that other senses might have served his turn as well. This last I will not dispute; but I will say that *the elimination of vision is the first requisite for an intelligent study of physical space*. The very fact that it can be eliminated—as in the experience of the congenitally blind—without in the slightest degree obscuring the geometrical properties of things, shows that it is a wholly unessential complication. On the other hand, there is, so far as we know, no independent visual space perception. It is impossible for us to eliminate from the visual experience the factors of touch and strain and flexion; though mathematical students of the subject will perhaps never be brought to comprehend this. But the visual factor can be eliminated; and it is, therefore, a matter of elementary scientific prudence to do so. The world in physical space is the blind man's world.

for example, that we start from one which has the appearance of a circular disk, such as would be called a penny, and suppose this appearance, in the perspective in question, is circular, not elliptic. We can then form a whole series of perspectives containing a graduated series of circular aspects of varying sizes: for this purpose we only have to move (as we say) towards the penny or away from it. The perspectives in which the penny looks circular will be said to lie on a straight line in perspective space, and their order on this line will be that of the size of the circular aspects. . . . It is to be remarked also that any other 'thing' than our penny might have been chosen to define the relations of our perspectives in perspective space, and that experience shows that the same spatial order of perspectives would have resulted" (p. 90). The corresponding passage in *Scientia* adds: "By such means, all those perspectives in which the penny presents a visual appearance can be arranged in a three-dimensional spatial order" (p. 13).

There are criticisms of two kinds to be passed upon this construction; first, that it is theoretically inadequate; secondly, that it is impossible in practise.

(a) Comparatively few objects can be approached without change in their visual shape. The penny is an exception to the general rule; and though there are many exceptions the chance of hitting upon them is negligible. It is true that for small distances the change of shape is commonly slight; but it is also slight for a slight departure from the straight line. The consequence is that the space constructed must be less finely articulate than we should expect.¹⁰

Again, the observation of intersecting lines involves a turning of the head or eyes in order to sight objects in different directions. Strictly speaking, no perspective can be placed in two straight lines. This defect of the theory may, however, be corrected by regarding as the "element" of the space, not a perspective, but a class of perspectives, viz., those that are connected with one another by a simple turning-movement; such a movement being defined, say, as one that did not change the apparent size¹¹ of anything.

(b) Few "points" of perspective space are at any time occupied by minds. The knowledge of perspectives must be gained by movements in which they successively come into being and are given to our observation. Mr. Russell assumes, indeed, that very much the same

¹⁰ It may be added that the choice of the penny, while it is fortunate in one respect, is singularly unfortunate in another. If any other aspect than the circular were considered, the perspectives would occupy, not a straight line, but a roughly conical surface.

¹¹ To save myself from my friends I must say that this terminology is to me very objectionable, but that I am writing within the limits of Mr. Russell's theory.

perspective exists before and after it is perceived; but that anything comparable to visual sense-data exists where there are no eyes or nerves or brain-centers is, on his own principles, most improbable; and if they do exist they can not enter into the empirical construction. What must actually be ordered are visual worlds that are past and gone.

Now, how shall such perspectives be recorded? Only by means of the visible shape of the object sighted. Every straight line explored must be labeled by an *exact drawing* of the visual form that defines it; and for different segments of the same straight line additional drawings must often be made. For to ensure comparisons of the requisite exactness mere memory could not be trusted. Again, as I have pointed out, the real unit of the space is the set of perspectives related by a simple turning-movement. For every "point" an elaborate set of drawings of the visual objects perceived in *all directions* must be made; only thus could the intersection of lines be noted. Does the reader realize what this means? Let him lift his eyes from the page and pass them slowly over the walls and ceilings and furniture of the room; and let him imagine the labor of making a full inventory of all that he sees. The inventory would have to be full; otherwise he could never count upon discovering the laws that govern the intersection of straight lines of perspectives. Then let him carefully turn his head, first around, then upwards and downwards, being careful to avoid any movement of translation; for the least shift would make a muddy space. And thus let him imagine the completion of his inventory—that is to say, his conception of a *single spatial element*. Next let him shift his head ever so little and hold it steady while he repeats the process; and so forth and so on. Now I realize that the patience and industry of many clever artists and many tireless tabulators can accomplish a good deal. But it seems to me that this particular task, if it be not absolutely impossible—and it is surely not far from that—is practically impossible; and the opinion hardens into conviction when I reflect that the whole rigmarole would have to be repeated in a great many different places. I am perfectly sure that all this is never going to be accomplished.

Now how damaging is this consideration to Mr. Russell's theory? It must, I should say, be regarded as altogether fatal to it. For the construction purports to be a possible foundation for physics, an empirical science; and if the operations which it calls for are practically impossible of execution, the whole enterprise falls to the ground. And that is not all. Mr. Russell's language betrays the fact that he believes this construction to represent approximately the (not wholly attentive) construction by which, as a matter of fact, the world in physical space has been built up. "Experience shows," he writes,

in the passage quoted above,—assuming that there is such a body of experience. And in the corresponding passage in *Scientia* he writes: “Experience shows that the same spatial order of perspectives would have resulted if, instead of the penny, we had chosen any other thing which appeared in all the perspectives in question, or *any other method of utilizing* the differences between the appearances of the same things in different perspectives. *It is this empirical fact which has made it possible to construct the one all-embracing space of physics*” (p. 13).¹² Of course, no such body of experience exists. Mr. Russell has *deduced* his conclusion from his knowledge of physical space; nobody ever *induced* it.

(c) The final step of the construction offers no special difficulty. Each “thing” is correlated with the perspective that lies at the intersection of the various straight lines which its different “appearances” determine. Incidentally, however, Mr. Russell commits a blunder, which is in itself not worthy of notice, but which is interesting as showing how far Mr. Russell has been from distinctly imagining the procedure that he describes; for under favorable conditions men like him do not make mistakes in elementary geometry. Reverting to the penny, he says (p. 90): “We can form another straight line of perspectives in which the penny is seen end-on and looks like a straight line of a certain thickness.”¹³ Here “a certain thickness” is ambiguous; and according to the interpretation given to it the perspectives lie in a plane surface or in a circle—but not in a straight line.

The fact is, of course, that in the actual construction of physical space, as we see it take place in the experience of children, and as it has been further developed in the history of science, lines of perspectives played no part at all; and it has proceeded, not by comparison of visual shapes, but by *measurement*. Empirical geometry is primarily a metrical geometry, operating with, and upon, solid bodies. Now, it is, no doubt, abstractly possible that an entirely new system of experiments may be devised that will lead to the same result; but the probability is not great enough to be a guide of the scientific life. On the other hand, though the early history of metrical geometry is obscure, it is not difficult to draw up a series of experiments, conceived in its spirit, and sufficient for the construction of physical space. I have already given in outline a solution of this problem;¹⁴ but the construction starts from assumptions very different from those of Mr. Russell.

¹² Italics mine.

¹³ Similarly, in *Scientia* (Vol. XVI, page 13): “Those perspectives in which the penny appears as a straight line of a certain thickness will similarly be placed upon a straight line.”

¹⁴ In “The Nature of Primary Qualities,” *Philosophical Review*, 1913.

So much for the construction of space. I have chosen this point for special attention, not because it is the weakest in Mr. Russell's position, but because it is the most interesting. The weakest point, in my judgment, is the definition of matter. Let us look at this for a moment.

"We commonly assume that the information we get about a thing is more accurate when the thing is nearer. . . . Complete accuracy would only be attainable as a limit. . . . It is obvious that from the point of view of physics the appearances of a thing close to 'count' more than the appearances far off. We may therefore set up the following tentative definition: The *matter* of a given thing is the limit of its appearances as their distance from the thing diminishes. It seems probable that there is something in this definition, but it is not quite satisfactory, because empirically there is no such limit to be obtained from sense-data. The definition will have to be eked out by constructions and definitions. But probably it suggests the right direction in which to look."¹⁵

The facts here cited I should explain in a way that is utterly foreign to Mr. Russell's epistemology. But, without going into that, we may note that not only is no limit empirically obtainable, but there are marked exceptions to the uniformity of variation. An object brought too close to the eye loses in clearness; and though the tip of the nose is nearer the nervous centers than the tips of the fingers are, it does not feel so well. As for the suggested constructions, they must evidently be based upon assumed *sensibilia*, belonging to perspectives where no psychophysical organism exists. Here, as elsewhere, Mr. Russell overlooks the consideration that, if such perspectives exist, it is not to be presumed that they contain appearances that belong to distinct things in their vicinity. Without a multiplicity of sense-organs, how could there be more than a single *sensibile*? As I have said before, in dealing with such *sensibilia* no degree of continuity with our sense-data can be safely or legitimately assumed.

On the whole I should say that Mr. Russell's task of the construction of the physical world from sense-data is impossible of accomplishment. Even supposing that such sense-data, as he assumes, exist—instead of their being, as many psychologists hold, themselves a product of scientific construction—nevertheless their organization into a world wholly exceeds the power of science. The reason for this has been given by J. S. Mill. Berkeley had supposed that the laws of nature were observed uniformities in the order of our sensations. Mill pointed out that, from actual observation, no instance of such uniformity is known. In *no single instance* can I say: If I have such and such sensations (accurately describing them) then I shall have

¹⁵ *Scientia*, Vol. XVI, page 16.

such and such sensations (accurately describing these also). The observable uniformities obtain between unities of a more complex sort, built up, in the main, not by processes of logical induction, but by association. In Mill's phrase, they obtain between groups of possibilities of sensation, that is to say, between things and events.

Mr. Russell's fundamental error lies right here. He writes, for example: "I think it may be laid down quite generally that, *in so far* as physics or common sense is verifiable, it must be capable of interpretation in terms of actual sense-data alone. The reason for this is simple. Verification consists always in the occurrence of an expected sense-datum" (p. 81). It never does. It consists in the observation of an expected material event. By rare exception an expected sense-datum may enter into the verification; but it is always in a definite material setting. Consider the example that Mr. Russell himself cites: "If I look at the moon on two nights a week apart, there is a very close causal connection between the two sense-data" (p. 82). It is obvious that the sense-data which one has a right to expect must vary greatly with physical conditions which can not themselves be resolved into terms of sense-data. The real causal connection is not between sense-data, but between the physical conditions at the two times, which might have been essentially the same, though the sense-data were very different.

There are several other features of Mr. Russell's construction that I should like to criticize if space permitted—for example, his conception of the nervous system, including the cerebral centers, as a transmitting medium of appearances, exactly analogous to "fog or smoke or colored glass."¹⁶ But I am constrained to close and I do so with the statement, that, in my opinion this latest phase of Mr. Russell's philosophy is as complete and radical a failure as his ethical theory of a few years ago, which he has now discarded.

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THE METHOD OF PSYCHOLOGY

THE present is a strange and troubled time for psychology. After approximately a half century of development, the theoretical foundations of the subject are now widely and aggressively called in question. It is doubted by some whether consciousness is the subject-matter of the discipline, whether introspection is its method of research, or, for that matter, whether the department of thought, in its traditional form, is a science at all. Such drastic searching of heart can hardly fail to astonish those who remember the many conquests

¹⁶ *Scientia*, Vol. XVI, page 4.

made by psychologists, and who have taken the success of these thinkers as evidence of the truth of the fundamental principles from which they have worked. But traditional conceptions often serve for a surprisingly long time to correlate the results of investigation, only to fall eventually into complete or partial disuse; unless thoroughly tested, the old forms sooner or later fail under the weight of fresh facts. The period of detailed research is then temporarily succeeded by one of more general criticism, when foundations are examined and, to a greater or less extent, relaid. Physics, chemistry, and biology have been tested in this manner, and have emerged stronger for the trial. The time is apparently at hand when psychology must undergo the same process; and it seems the opinion alike of proponents of the classic method, and of its critics, that, whatever the issue, such a process can hardly fail to be beneficial to the subject.

Current discussion of psychological method, found in a flood of recent articles, is varied; but it centers, as already implied, on the rôle that consciousness should play in the science. Is consciousness the subject-matter of the discipline—must its interpretations be cast in terms of awareness? Or, should psychology turn from the subject's experience altogether, and concern itself only with stimulus and reaction, with "behavior"? So far, these questions seem largely to have been discussed as though the word "consciousness" and its synonyms had only a single meaning, as though they were clear and unambiguous terms. But this is not true: there are two well-defined and antagonistic interpretations of the fact of knowing and feeling. These, for lack of better terms, we shall call the "subjective," or "dualistic," and the "functional," or "relational," hypotheses of this subject. Now it is clearly indispensable to a solution of the questions stated above that these rival doctrines be distinguished. Otherwise what we say of consciousness as a whole may apply with justness only to a particular conception of it, and attack and defense will both be indecisive. But once the necessary distinction is made, the problem divides into two parts: "Is consciousness, in the dualistic sense, the subject-matter and central principle of psychology?" "Is it the data of that science in the relational meaning of the term?"

There can be little doubt that psychology has commonly been regarded as a science of mind in the first of these two interpretations. Indeed, until recently, this was the only theory of the subject definitely formulated, or even dreamed of. According to this conception, consciousness is a kind of entity, a second sort of reality over and above physical objects, which has an existence, an integral life of its own. It is believed to be constituted of elemental bits or processes, mental states of various kinds, which are known to the total structure, or some part of it, by a unique process of apprehension called intro-

spection. But of this theory, though it has entered vitally into most systems of psychology and philosophy, there has been singularly little direct exposition or defense. The reason for this, as Reid long ago pointed out, is to be found in the circumstance that, apart from a few loose inferences from the fact of error totally incompetent to support the thesis, the theory has been regarded as self-evident; and so there has been comparatively little effort to establish it rationally. It has been accepted as a fact—often a very awkward one—to be explained as best one could, and has rarely been thought of as an hypothesis needing demonstration. Even at the present day this seems to be the prevailing view of the subject.

The alleged self-evidence of mental existence, in the sense just outlined, rests, however, upon a palpable confusion. Red, hot, men, trees, and similar content are, indeed, or may be, immediately evident to the knowing subject. This no one has the temerity to deny. But the presentation of this content *in some manner* is not conclusive as regards its self-evidence in the *particular way* affirmed by the dualistic theory. In a case like this, it is necessary to distinguish between the naked facts themselves and our familiar, almost second-nature, interpretation of them. The former are truly self-evident; the latter is but an hypothesis. Search our "minds" as we will, we shall not find this content immediately given in the manner above indicated: we only discover the bare and colorless fact that we know it. If, then, the classic interpretation is to retain its hold on the serious thought of men, it must be supported by evidence. It must be shown that it renders more intelligible than any other known conception the given facts of consciousness.

Now it must be confessed that the history of dualistic psychology is evidence, in a way, of the ability of the traditional doctrine of mind to correlate the facts of knowing and feeling. At the same time, it is equally true that continued use of the conception has gradually brought to light various defects in the synthesis established by it: these, lately grown to alarming proportions, have materially weakened its claim to acceptance. Some of the difficulties to which we refer have been briefly and brilliantly set forth by Watson,¹ and it will suffice to illustrate their general nature to refer, in passing, to his statement of them. The main charge that this writer brings against current psychology² is that confusion and uncertainty lie at

¹ See his article, "Psychology as the Behaviorist Views It," *Psych. Rev.*, 1913, especially pages 163-165.

² Watson does not distinguish two possible conceptions of consciousness, and so does not explicitly level his criticisms at the traditional or subjective hypothesis. And it must be admitted that partly he means to condemn *all* investigations of this subject-matter, however conceived, on the ground that it is necessarily esoteric in character. At the same time, his strictures seem mainly to

its very roots; that there is, on the part of many of its exponents, an irreconcilable difference of opinion concerning many of its simplest and most important conclusions. Thus, as he shows, one psychologist assigns quality, extension, duration, and intensity as the attributes of visual sensation, while another adds clearness, and a third order. As regards the number of these sensations, there is a similar variety of views. Some investigators place it at the number of just-noticeable-differences on the color-pyramid, while others maintain that there are only four simple sensations, red, yellow, green, and blue. But the first of these solutions yields an unmanageable result, while the second is paradoxical in that yellow, though psychologically simple, is physically complex: it can be produced by mixing red and green rays. He further calls attention to the contradictory teaching concerning the number of types of mental processes—whether one, two, or three; the question of the relation and difference of such fundamental types as sensation and affection—whether the latter is a simple element coordinate with the former, or a mass of organic sensations, or a set of attitudes; whether feelings have or lack clearness; and, finally, whether there is such a thing as imageless thought. These and other divergent opinions lead this critic to conclude that psychology “has failed signally . . . during the fifty-odd years of its existence as an experimental discipline to make its place in the world as an undisputed natural science.”³ Some of these controversies, it must be admitted, are due to the subject’s youth, and others to its intrinsic difficulty; but it is doubtful whether all can be accounted for in this fashion. It is possible, if not probable, that they partly result from the dualistic or subjective manner in which the problems of the science have commonly been conceived. “Only those who are wedded to the system as we now have it, who have fought and suffered for it,” as Watson remarks,⁴ will exclude this possibility.

More general difficulties, which heretofore have perplexed philosophers more than psychologists, may be briefly added to those already mentioned. There is, first of all, the problem of the existence and nature of mind considered as an unique sort of being. What evidence have we that such reality exists, and what, precisely, is its character? We have already progressed far enough in our analysis to show that, to the first of these questions, no very convincing answer can be given. And if there is no clear proof that minds, in this sense, apply to the traditional or dualistic formulation of the subject. Or, perhaps it would be fairer to say that he merely attacks psychology as he finds it, but, as the latter is largely subjective in form, his shafts are really directed almost wholly against this type of theory.

³ *Op. cit.*, page 163.

⁴ *Op. cit.*, page 164.

exist, it is manifestly idle to seek detailed information concerning their nature. Equally baffling is the question of the whereabouts of these ghostly forms. Strictly speaking, they are nowhere, their dimensions are not those of space; at the same time, minds are distributed as physical individuals are, we look "in" to see them, ideas are "in," as material objects are "outside" of them, etc. Nor are these ways of speaking wholly avoidable, for known content is somewhere, and, if housed in the mind, spatial attributes must necessarily be applied to the latter. But just as surely these attributes must be denied. The result is that dualistic psychology is forced into the uncomfortable position of dealing in counters which it can not acknowledge and with which it can not dispense. The mind-body problem, which Warren calls the "Wandering Jew" of the philosophical sciences,⁵ is as fruitless as the questions just considered. Inseparable from any form of dualism, in that the world, severed into halves, must be drawn together again, it is, at the same time, insoluble. Parallelism, to be sure, is an unobjectionable account of the interrelation of psychical and physical processes, but it is not specifically a dualistic hypothesis; in fact, in its strict form, it altogether eschews explanation in this sense, and merely asserts, what has rarely been questioned, a one-to-one relation in some sense between changes in knowing and variations in the physical organism. Finally, in our incomplete list of difficulties, we must mention the common confusion between content known and the process of knowing it—between *sentientum* and *sentiens* in Dunlap's phrase⁶—which has misled psychology; and, in philosophy, has been an important, if not the main, prop of subjective idealism. A detailed refutation of the latter position is here, of course, out of the question. Suffice it simply to say that it denies all objectivity in given fact, reason, and truth; and thus cuts the ground from under science, or, indeed, any undertaking that pretends to deal with more than mere personal experiences. Subjectivism in philosophy, like mysticism and cognate approaches to reality, is a species of irrationalism. It may be quite consistent within itself, but it is not homologous with proof and demonstration; its ways are not the ways of science.

It is these considerations, doubtless, that led Watson to bring against traditional psychology the double charge that it does not admit of exact, scientific treatment, and that it leads to speculative questions which, while essential to its present basis, admit of no real solution. It is these same difficulties which have led to the formula-

⁵ "The Mental and the Physical," *Psych. Rev.*, 1914, page 79.

⁶ "If we use it [the term sensation] promiscuously in both ways," says this author, "we introduce into psychology the same lack of significance which would be introduced into a lease by using 'lessee' and 'lessor' interchangeably," *Psych. Rev.*, 1914, page 63.

tion of the new or relational interpretation of consciousness. By this is meant the hypothesis that knowing is not a kind of substance, a "spiritual" form of reality added to the physical organism, but rather just an *attribute* or *function* of the latter. Thus a creature knows as it walks or eats, and is as little body and knower as it is body and walker, or body and eater. It is just one thing functioning in a variety of ways. Essentially the same position may be expressed in different terms: Knowing may be described as a relation between the nervously endowed and functioning organism, on the one hand, and certain selected or apprehended portions of the objective world, on the other. The new hypothesis thus presents two salient features: first, that there is no mind in the traditional sense, and second, that the content which is commonly supposed to reside in this hypothetical entity, which is believed, indeed, to be the very stuff of which it is made, is now placed in the objective order. Sensations, accordingly, are not separate bits of consciousness, but merely qualities of objects sensed; in the same way percepts are but objects perceived, and ideas in general but things or relations known.⁷

Such is the interpretation of consciousness recently proposed as a substitute for the familiar doctrine of mental states. Only continued use and thoroughgoing criticism can, of course, decide the issue between this and its rival hypothesis. But even from the first, it must be evident that the new conception possesses certain distinct advantages over the older one. So far as psychology is concerned, its superiority lies mainly in the fact that, while preserving the classic subject-matter of the discipline, it transfers this material from the private and ghostly realm of mind, where it rests in an uncertain light, to the common order of things, where, in principle, all is open and simple. To be sure, every one's apprehension of these public facts is his own; by so much the knowing process is private; but there is an important gain in that the data known, the facts themselves, are

⁷ To this interpretation, certain forms of knowing—especially conception, affection, and the fact of error—are sometimes regarded as insuperable difficulties. It is said that when we know the class man or gravitation, or feel pleasure or pain, or apprehend a white house as gray, what we experience, having no place in the order of individual things, must be a subjective existence. Now it will readily be granted that these forms of consciousness do not put us in touch with precisely the same aspect of complex reality that perception does; but it does not follow from this that they are mere mental states. On the contrary, their objective character appears whenever we consider them. Thus classes and relations are of the same order as the things grouped or related. Similarly, pleasures and pains are the qualities or attributes of one's own internal bodily condition; and "appearances" are what we necessarily apprehend under abnormal, as "real things" are what we perceive under normal, conditions. The truth is that *all* content or *none* is subjective in the dualistic sense. As reality is all of a piece, where part is, there will the remainder be also.

objective. The conception of introspection is similarly clarified. For this process can no longer be regarded as the sole and highly distinctive approach to an unique order of existences, but rather as just a special form of ordinary knowing. It differs from the latter in the circumstance that attention is now chiefly directed away from the nature of things as they are in themselves, which is the usual concern of men, to the character of the knowing process itself, and to the changes in content which are correlated with it. The psychologist's interest is thus just the reverse of the ordinary man's. What the one investigates the other largely neglects: in current phrase, the "fringe" becomes the "focus," and the "focus," the "fringe." But the content of the two processes, apart from this difference of emphasis, is the same.

We believe, then, that the relational interpretation of consciousness simplifies the work of the psychologist; but, to an even greater degree, it disentangles the philosophical difficulties to which we earlier referred puzzled philosophers. Thus the knower, on this view, is just the physical organism itself. There are not three entities involved in apprehension, the body, the mind, and the object, but only two, the functioning organism and the thing known. There is, accordingly, no body-mind problem in the common sense of the term. The only question that arises in this connection is the purely empirical one of precisely what correlation exists between known content and bodily variations; and this is but a particular case of the universal problem of establishing constant relations. In the same way, the persistent confusion between the act of knowing and the datum known is cleared up; function and content are now so sharply distinguished as to make confusion improbable. This simple distinction, moreover, practically puts an end to subjectivism. What we know can no longer be regarded merely as our own ideas, but becomes, at the same time, a part either of the permanent order of things, or of the realm of appearances which is essentially homologous with it.

In considering the changes which follow the substitution of the newer for the traditional theory of consciousness, it should be carefully noted that such alteration does not affect, save by way of setting or interpretation, the detailed content of the discipline. Psychology is still the science of knowing and feeling, and all empirical problems with reference to this subject-matter, as well as all verified results, remain, as before, its very flesh and blood. The only difference is that these facts are now taken up in a new synthesis, which clears them of pseudo-problems, and opens the way for their further detailed and experimental investigation. Nor is evidence lacking in the current literature that such a fundamental reconstruction of the discipline is now well under way. Thus some authors, of whom Angell appears

to be an example,⁸ fail to distinguish between the two interpretations, and, as a result, imply now one and now the other, as suits their convenience. But there are others, notably Titchner⁹ and Dunlap,¹⁰ who seem consciously and consistently to organize their material on the basis of the relational theory of mind. In philosophy, the new hypothesis is more generally accepted. First advocated by James, it has been adopted as a working principle by many thinkers, notably by the new realists, who have made it the corner-stone of a radical and promising system of metaphysics.

The theories of psychology so far discussed agree in giving consciousness the central place in the discipline. A widely different and revolutionary conception of the science has, however, recently been advanced by certain investigators, and seems, for the moment at least, to be gaining favor. According to these writers, psychology has no concern whatever with consciousness; what an individual feels or knows is no part of the subject-matter of the discipline, nor should its results be interpreted in terms of awareness. Psychology, they tell us, should deal only with stimulus and reaction; it is the science of specific forms of behavior. "I believe," says Watson,¹¹ "we can write a psychology . . . and never use the terms consciousness, mental states, mind, content, introspectively verifiable, imagery and the like. . . . It can be done in terms of stimulus and response, in terms of habit formation, habit integrations, and the like." According to this conception, the inexactness of psychology is not due to the particular way it conceives its subject-matter, but is inseparable from the study of consciousness in any form; to be a science, it must turn its back on all purely private data, and concern itself with material as objective as that which the physicist or biologist studies.

As one would expect, this radical suggestion has not escaped criticism. Angell, though largely in sympathy with it, maintains that such a programme can not be completely executed, that the results of the new science must be supplemented by material gleaned from introspection.¹² And R. MacDougall points out that the particular type of behavior studied by Watson and his coworkers can only be isolated by substantial, even if indirect, reference to consciousness; and consequently that the latter conception virtually becomes, as in the past, the determining feature of the science.¹³ These objections, however, either merge into or are overshadowed by a criticism so fundamental and insistent that it especially demands examination. It is, in

⁸ "Behavior as a Category of Psychology," *Psych. Rev.*, 1913, pages 255-70.

⁹ "A Text-book of Psychology," Ch. I.

¹⁰ *Op. cit.*

¹¹ *Op. cit.*, pages 166, 167.

¹² *Op. cit.*, pages 260, 264.

¹³ "Mind as Middle Term," *Psych. Rev.*, 1912, pages 386-403.

effect, that though behaviorism may be a legitimate and necessary science, it simply is not psychology, but a subdivision of biology, and so should go its way in peace and industry, leaving unmolested the classic investigation of conscious processes.

There can be little doubt that there is a good deal of truth in this position. It is presumptuous and unwarranted that exponents of the new science should dismiss all investigation of knowing and feeling as a merely esoteric undertaking. The results of such research, it is true, can usually be stated only in qualitative terms; but this fact does not warrant us in neglecting conscious processes altogether. As immediately given data, they are undoubtedly real, and cry aloud for explanation. Indeed, to certain minds, they are uniquely interesting and important just because they are purely personal phenomena. Angell well presents the views of such when he says, "mental process as mental process is the only fascinating and ultimately worthy subject of study, . . . to recognize and describe the external expressions of love, hate, and anger is as different from the actual experience of these thrilling emotions, and from the description of what is immediately felt, as is the inspection of a good meal from the consumption of the same."¹⁴ We may rest assured, then, that whatever else psychology may be, it is at least a doctrine of awareness. To deny this, even in the interests of another and equally valid interpretation of the science, is to pour out the baby with the bath.

But granting that this is true, is the investigation of those forms of behavior which accompany and have significance for consciousness likewise psychology? Certain it is that behaviorism has many of the distinguishing marks of biology, and might, without great impropriety, be classed with the sciences of that group. At the same time, and quite apart from the fact that the discipline has been developed by men trained and known as psychologists, it is vitally connected with the study of consciousness, and so may claim kinship with the latter science. So far as there is any principle involved in this dispute, and it is not a mere war of words, the question at issue is whether the indirect relation which behaviorism bears to traditional psychology justifies us in regarding the former subject as a branch of the latter. Must a body of knowledge to be classed with the science of mind take explicit account of knowing and feeling, or is it enough that it have a real, even if undeveloped, relation to the latter?

To this question there is, unfortunately, no certain answer. The advancement of thought, and the adoption by many sciences of the methods of their more exact neighbors, has obscured the clear divi-

¹⁴ *Op. cit.*, page 269.

sions which once existed between the major bodies of knowledge. But so far as we can expect light on our difficulty at all, we shall probably find it if we view the question as just a phase of the more general problem of qualitative and quantitative interpretations of reality. Most data, it is well known, admit of both types of explanation. Colors are treated by psychology and esthetics as red and green, yellow and blue; while, by physics, they are viewed as vibrations of the ether. Traditional biology interprets the organism in terms of structure and function, but these categories yield increasingly to those of physics and chemistry. And probably the same twofold interpretation is possible of every other subject-matter, including even the acts and thoughts of men. This, of course, does not mean that colors, sounds, functioning organs, etc., are unreal. On the contrary, they are as genuine and actual as, according to any test, they are found to be; it merely shows that supplementary and equally valid explanations, made from different points of view and having importance for different aspects of life are possible of one and the same material.

This view, applied to the controversy between behaviorism and structuralism, suggests a way of terminating that dispute. For it would appear that these disciplines are, respectively, quantitative and qualitative interpretations of consciousness. If knowing and feeling are to be objectively measured, they must be treated under the guise of bodily reactions; they must be regarded as forms of behavior in the same sense and with the same limitations that colors are called wave-motions, and organisms quivering masses of molecules. The two aspects of reality can be distinguished or merged at will. How we shall regard them in any given instance depends wholly on our purpose. Structuralism and behaviorism are thus hemispheres of the doctrine of mind which, though properly separated to meet the demands of an ambitious specialism, must yet be united if we are to have a fully rounded account of consciousness.

The question of name, to be sure, still remains unsettled. Since the meaning of terms is fixed by usage, and the latter is often notoriously indifferent to principle, we can not say with certainty that the close relation which obtains between behaviorism and structuralism will lead to the designation of the former body of principles as psychology. But we can at least hope that the mutual relations of the two sciences will be increasingly recognized. Of the extravagant contention that behaviorism is the only scientific doctrine of psychology, there thus remains this kinship as the lone fact of enduring significance.

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REVIEWS AND ABSTRACTS OF LITERATURE

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Translated by DOUGLAS AINSLIE. London: Macmillan and Company.
1913. Pp. xxxvii + 591.

The translator's preface gives a brief statement of "the basis on which rests the *Philosophy of the Spirit*, without attempting to do anything more than to give its general outline. The reader should imagine himself standing, like bold Pizarro, on his 'peak of Darien,' surveying at a great distance the vast outline of a New World, which yet is as old as Asia. The Spirit is Reality, it is the whole of Reality, and it has two forms: the theoretic and the practical activities. Beyond or outside these *there are no other forms of any kind*. The theoretic activity has two forms, the intuitive and individual, and the intellectual or knowledge of the universal: the first of these produces images and is known as *Æsthetic*, the second concepts and is known as *Logic*. The first of these activities is altogether independent, self-sufficient, autonomous: the second, on the other hand, has need of the first, ere it can exist. Their relation is therefore that of double degree. The practical activity is the *will*, which is thought in activity, and this also has two forms, the economic or utilitarian, and the ethical or moral, the first autonomous and individual, the second universal, and this latter depends upon the first for its existence, in a manner analogous to *Logic* and to *Æsthetic*. With the theoretic activity, man understands the universe, with the practical, he changes it. There are no grades or degrees of the Spirit beyond these. All other forms are either without activity, or they are verbal variants of the above, or they are a mixture of these four in different proportions. Thus the *Philosophy of the Spirit* is divided into *Æsthetic, Logic, and Philosophy of the Practical (Economic and Ethic)*. In these it is complete, and embraces the whole of human activity" (pp. xvi-xviii).

Mr. Ainslie has now translated two parts of this comprehensive work, and intimates that shortly he will complete the task by presenting us with a translation of the *logic*. He brings to his task an unbounded appreciation of his author. "What most impresses in the Crocean thought is its profundity, its clarity, and its *completeness*,—*totus teres atque rotundus*. Croce, indeed, alone of the brilliant army of philosophers and critics arisen in the new century, has found a complete formula for his thought, complete, that is, at a certain stage; for, as he says, the relative nature of all systems is apparent to all who have studied philosophy. He alone has defined and allocated the activities of the human spirit; he alone has plumbed and charted its ocean in all its depth and breadth. A system! The word will sound a mere tinkling of cymbals to many still aground in the abstract superficialities of nineteenth-century scepticism; but they are altogether mistaken. To construct a system is like building a house; it requires a good architect to build a good house, and where it is required to build a great palace it requires a great genius to build it successfully. Michael Angelo built the Vatican . . . Benedetto Croce has built the *Philosophy of the Spirit*" (pp. xv-xvi).

The readers of this JOURNAL are all familiar with the fact that Croce is an Hegelian, who, however, follows Hegel in a very independent manner. Ainslie has characterized the relation between Croce and Hegel thus: "To clear away the débris of Hegel, his false conception of art and of religion, to demonstrate his erroneous application of his own great discovery of the dialectic to pseudo-concepts, and thus to reveal it in its full splendor, has been one of the most valuable of Croce's inestimable contributions to critical thought" (pp. xii-xiii).

The "Philosophy of the Practical," which, as its subtitle implies, is both an economics and an ethics, treats these subjects, however, by what the author is pleased to call the philosophical method. What is not obtained and endorsed by this method is not worthy of incorporation in any philosophical treatise. What this philosophical method is we are told unambiguously. "The philosophical method demands complete abstraction from empirical data and from their classes, and a withdrawal into the recesses of the consciousness, in order to fix upon it alone the eye of the mind" (p. 9). The same thought is put more picturesquely in a particular case: "If Tizio wishes at this moment to go to bed and Caio to take a moonlight walk, bed and walk are the affairs of Tizio and of Caio; for the philosopher there is no Tizio, no Caio, but man in universal; there is neither bed nor moon, but pleasure and the good" (p. 208).

The work is too comprehensive to admit of either satisfactory summarization or criticism in such a review as this. Any adequate discussion of the principles on which the philosophy of Croce rests would require many pages, and any detailed quotations, taken apart from the context, might give a misrepresentation of the author's views.

There seems to be some likelihood that Croce is going to be much read and discussed for some time in philosophical circles and in semi-philosophical epicycles. I have been told that last spring, before the war, his star was in the ascendant at Oxford, having taken the place lately occupied by Bergson's. If this be true, I suppose we shall all have to familiarize ourselves with Croce; for there are philosophical authors one must read because others are reading them, as well as authors one must read because they are independently valuable. Whether Croce belongs to the first class alone or whether he belongs to both classes, is a question that different readers will answer differently. Up to date the reviewer has not succeeded in working himself up to the pitch of enthusiasm shown by the translator. Perhaps the extravagant claims made by the translator in the preface brought about a reaction. The reviewer must confess that he finds Croce quite frequently unilluminating, and his dogmatism more trying than Hegel's. Hegel had some excuse for his dogmatism in the very dogmatic character of his times; and, besides, the dogmatism of the master is always more tolerable than that of a disciple. But as already indicated Croce is a very independent disciple. His independence is so great that the reader should be warned against expecting to find in him an easy guide to Hegel's philosophy. Mr. Ainslie, on the contrary, would lead the reader to be very sanguine in the matter. "Hegel is an author most deeply stimulative and suggestive, but any beginner is well to take

advantage of all possible aid in the difficult study. To bring this thought of Hegel within the focus of the ordinary mind has never been an easy task (I know of no one else who has successfully accomplished it)" (p. xii). Now whatever may be said for Croce's "What Is Living and What is Dead of the Philosophy of Hegel," which Mr. Ainslie says has "enormously aided a just comprehension" of Hegel, I venture to think that the volume before us will not serve very successfully as a guide to Hegel. It is too bad to feel called upon to throw cold water upon any hopes that the translator may have aroused.

The translation does not always have the smoothness one has a right to expect of a translation from the Italian and especially from Croce. One example of what I have in mind must suffice: "He [every poet] knows that it [a poem] is in reality a primitive intuition-expression, in which all is determined and nothing is determined, and what has been already intuified is already expressed, and what will afterwards be expressed will only afterwards be intuified" (p. 78). There are some rather perplexing typographical errors, *e. g.*, "Action is the act of one event, is the act of the whole" (p. 78), where the comma should have preceded the word "event." Is "opportuneity" (p. 128) a misprint or a barbarism?

The publishers have given us an unusually handsome volume; but any one who may have occasion to consult the work will wish that an index had been supplied.

EVANDER BRADLEY MCGILVARY.

UNIVERSITY OF WISCONSIN.

Report of the Committee on the Academic Status of Psychology. December, 1914. Printed by the Committee of the American Psychological Association (Professors Warren, Dewey, and Judd). Pp. 27.

In consequence of the difficulties that have impeded the systematic development of psychological courses in American colleges; this committee attempted to study the academic status of that subject in 165 colleges and universities. The report contains a discussion based on the results of questionnaires sent to department administrators and others, and other data derived from an examination of published departmental announcements.

The inquiry deals with the academic and administrative relation of psychology to other departments of instruction; the length, content, aim, method, and place in the curriculum of the introductory courses; the number, nature, and coordination of advanced courses; laboratory equipment and maintenance; the number of students; the character, adequacy, and assignment of the teaching staff; and various general topics concerning the aim of courses, special courses, relation between graduate and undergraduate work.

The report submits various recommendations based on this preliminary inquiry. It is believed that in the determination of courses the psychological staff should enjoy as much autonomy as is accorded to philosophy, education, or biology. The question is raised of the possibility of more cooperation among various departments. Where the undergraduate curriculum is largely prescribed it is believed that a first course in psychology

should be given the same recognition as the fundamental courses in other sciences, the introductory course to be available at an early point in the curriculum. Dissatisfaction is expressed with the common practise of attempting to present the rudiments of psychology in three semester hours. No positive opinion is expressed on various questions of methods of instruction, but in the case of the first experimental course actual experiment is recommended rather than demonstration and discussion of principles. It is suggested that any laboratory which aims to give experimental courses should have a minimum equipment fund of \$500, with an appropriation for maintenance of not less than 10 per cent. of the equipment.

Since there is danger of slipshod work in the psychological laboratory unless there is more supervision and instruction than work in other sciences requires, the desirability of small working groups is emphasized. The importance of adequately trained instructors, who are psychologists rather than naïve popular lecturers on catching topics or really competent scholars in other lines, is pointed out. Graduate work should be confined to institutions especially equipped for that purpose. It is advised that a standing committee of the association be appointed to conduct further study of these problems; that at each annual meeting of the association some topic bearing on the teaching of psychology be chosen for discussion; and that the association adopt the principle that the undergraduate psychological curriculum in every college should be planned from the standpoint of psychology and in accordance with psychological ideals, rather than to fit the needs and meet the demands of some other branch of learning.

H. L. HOLLINGWORTH.

COLUMBIA UNIVERSITY.

JOURNALS AND NEW BOOKS

REVUE PHILOSOPHIQUE. December, 1914. *Les troubles de l'intelligence* (pp. 469-490): DR. REVAULT D'ALLONNES. - An outline, emphasizing the needed collaboration of medicine and psychology, of the symptomatology, etiology, diagnostic, etc., of the disorders of intelligence. *L'intérêt* (pp. 491-512): L. CELLÉRIER. - Interest is a complex with both intellectual and affective ramifications. "The perception (or representation) of an object evokes the notion which this object is capable of conducting to the satisfaction of an affective impulse of the individual. This evocation leads to the immediate reaction of the fixation of attention and the maintenance of the attention on this object." Owing to the infinite variety of effective tendencies, "in order to attain satisfaction, it is necessary to proceed, among our perceptions (and representations), to a selection between those which can and those which can not procure for us this satisfaction." This selection is the operation of interest. *Analyses et comptes rendus*. R. Turrò, *Les origines de la connaissance*: J. SEGOND. F. M. Cornford, *From Religion to Philosophy*: J. SEGOND. P. Villey, *Le monde des aveugles*: E. CRAMAUSSEL. R. Mondolfo, *Il materialismo storico in Frederigo Engels*: GASTON RICHARD. Guido di Ruggiero, *La filosofia contemporanea*: J. PÉRÈS. M. A. Palacios, *Aben Massara y su escuela*:

J. PÉRÈS. J. B. Sabrié, *De l'humanisme au rationalisme*: JULES DELVAILLE. *Notices bibliographiques. Revue des périodiques.*

Auvard, A., and Schultz, M. *L'Evoluisme*. Paris: A. Maloine. 1914. Pp. 383. 7 Fr.

Sleight, W. G. *Educational Values and Methods based on the Principles of the Training Process*. Preface by C. Spearman. Oxford: The Clarendon Press. 1915. Pp. vi+364. 4 s. 6 d.

Smith, David Eugene. *Problems about the War for Classes in Arithmetic*. New York: Carnegie Endowment for International Peace. 1915. Pp. 23.

Sturt, Henry. *The Principles of Understanding. An Introduction to Logic from the Standpoint of Personal Idealism*. Cambridge, England: University Press. 1915. Pp. xiv+302. 5 s.

NOTES AND NEWS

At a meeting of the Aristotelian Society on June 7, Dr. F. W. Aveling read a paper on "Some Theories of Knowledge."

"We begin the practical business of life equipped with a certain amount of knowledge gained by tradition and personal observation. We are personally acquainted with what we call 'facts,' and in possession of a number of ideal 'truths,' by means of which we are able to deal with our facts mentally. Our knowledge is of practical service to us, but, when we examine it critically, problems emerge, any solution of which must modify our ordinary unreflecting realism. Yet we wish to find our common beliefs justified and our convictions established beyond all possibility of criticism. This accounts for the strong tendency in the direction of realism. The realistic theories of knowledge which are being put forward at the present time form a moment in an ideological succession which goes back, through pragmatism and theory of the absolute, to criticism. Various neo-realistic theories were then passed in review, and a comparison instituted between the modern doctrine of immediate awareness, and the Thomistic doctrine of introspection, according to which the mind intuitively subject and object in their cognitive relation in every act or apprehension. Finally the various theories were considered in regard to the problem of truth. The one positive and ultimate criterion admitted by realism was declared to be objective evidence. This at the same time determines assent and is its epistemological justification."—*Athenæum*.

DR. JOSEPH PETERSON, who resigned from the chair of psychology in the University of Utah, has been appointed professorial lecturer in the University of Minnesota.

DR. HAROLD CHAPMAN BROWN, assistant professor of philosophy at Leland Stanford Junior University, gave two courses in philosophy at the Columbia University Summer session.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

THE RELATIVE IMPORTANCE OF SIZE AND FREQUENCY IN FORMING ASSOCIATIONS

THE investigation of the methods by which associations can be formed with the greatest readiness is a matter of considerable importance, both practically and theoretically. There have appeared, in the psychological literature, several accounts of the relative importance of such factors as intensity, recency, frequency, and primacy. On the other hand, a considerable amount of work has been done in recent years upon the effect of divided repetitions.

The experiment to be described in this paper is, in a measure, connected with both of these methods. The task we set ourselves was to determine the relative value of a full-page advertisement appearing once, a half-page appearing twice, a quarter-page appearing four times, and an eighth-page advertisement appearing eight times.

This investigation is connected with the experiments on intensity, frequency, etc., because size is merely one form of intensity, so we are studying the relation of intensity and frequency of stimulation in forming associations. It is connected with the other type of investigation because we are studying the effect of the different possible distributions of the same amount of stimulation in forming associations. Divided repetition takes account of the temporal elements which enter into the formation of associations, whereas this paper will deal more with the spatial elements connected with the same problem.

Scott¹ was, I believe, the first to attack experimentally the problem of the relative memory value of advertisements of different sizes. His material was composed of 100 pages of advertising matter, consisting of 43 full pages, 15 half pages, 36 quarter pages, and 93 smaller-sized advertisements. These advertisements were bound into the back of a current magazine and shown to 50 persons, 17 men and 33 women. Some of his subjects mentioned as many as 30 advertisements, while one man was unable to recall a single one that he had seen. They were tested for both recall and recognition memory. His results for miscellaneous advertisements follow. The figures in the

¹ Scott, W. D., "The Psychology of Advertising," pages 165-177.

table indicate the average number of times each advertisement was mentioned:

	Full	Half	Quarter	Small
Recall	6.54	2.73	1.08	0.15
Recognition	12.65	7.87	3.39	0.37

He concludes: "In all these cases it was found that the full-page advertisement was more than twice as effective as a half-page advertisement; a half-page was more than twice as effective as a quarter-page, and a quarter-page was more effective than a quarter-page of small advertisements."²

One possible source of error in his experiment comes from the fact that many of his full-page advertisements, such as Ivory Soap, must have been very familiar to his subjects before they began the experiment. The familiarity undoubtedly raised the average of the full-page advertisements. Indeed, the full-page advertisements are undoubtedly somewhat more familiar to the average reader than are the other sizes.

Münsterberg,³ using advertisements the size of those contained in the *Saturday Evening Post*, performed a variation of Scott's experiment. Six full-page advertisements appeared once, 12 half-page advertisements were shown twice, the quarter-pages four times, the eighth-pages eight times, and the twelfth-pages twelve times. These advertisements were mounted on 60 sheets of Bristol board and shown to 30 persons, 20 men and 10 women. Each page was looked at for exactly 20 seconds. If either the name of the article or the name of the firm was remembered, the advertisement received half credit; if both were remembered, it received full credit. The memory value was determined by dividing the average for each size by the number of individuals who performed the experiment.

The maximum number of advertisements recalled by any one person was 46, the minimum 18. The average memory value per advertisement was .44. The different sizes, however, had different memory values, which are given below:

Full page .....	.33
Half page .....	.30
Quarter page .....	.49
Eighth page .....	.44
Twelfth page .....	.47

Certain sex differences appeared, though only the following ones are noted by Münsterberg. For the quarter-page, the masculine

² Scott, W. D., "The Psychology of Advertising," pages 172-173.

³ Münsterberg, H., *Harvard Studies*, III., pages 263-268.

value was .51, the feminine .45; while for the eighth-page the men obtained an average of .37, the women of .53. This would indicate that men have better memories for the quarter-page and the women for the eighth-page advertisements.

Strong⁴ used 288 advertisements which were arranged to meet the following situations:

12 firms using full pages and advertising 4 times.

12 firms using full pages and advertising 2 times.

24 firms using full pages and advertising 1 time.

12 firms using half pages and advertising 4 times.

12 firms using half pages and advertising 2 times.

24 firms using half pages and advertising 1 time.

12 firms using quarter pages and advertising 4 times.

12 firms using quarter pages and advertising 2 times.

24 firms using quarter pages and advertising 1 time.

Twenty-one subjects were shown the sheets containing these advertisements at a uniform rate of one sheet per second, while another 18 looked them through at their leisure.

"The four sets of advertisements were shown to the subjects a month apart. One month later they were tested as to their remembrance of what had been shown them. In this test they were shown the last advertisement shown them from each firm, together with an equal number of wrong advertisements. They were instructed to pick out all the advertisements which they had seen previously in the test. If they were sure any advertisement had been seen before they were instructed to pick it out. Moreover, if they were not sure that the advertisement before them was the one they had seen, but were sure that it was the same *firm*, that was sufficient."⁵

He found that those who looked the pages over at their leisure spent three and a half times as long on the advertisements as those who looked at each page for one second and that the former remembered three times as much as the latter. His general results and conclusions he sums up briefly and ably in the following paragraph.

"It is very evident, then, that for the same total amount of space used during four months one obtains a greater permanency of impressions by using in the same magazine large space and less often than by using small space and more frequently. It is very easy to see that this must be the case in this particular situation, for permanency of impression increases approximately as the square root of the space used, but only as the cube root of the number of presentations. Hence, to repeat, the same amount of space used in large ad-

⁴ Strong, E. K., Jr., *Psych. Rev.*, Vol. XXI., pages 136-152.

⁵ Strong, E. K., Jr., *Psych. Rev.*, Vol. XXI., page 138.

vertisements seldom repeated must be more effective for permanent impressions than when used in small advertisements more frequently repeated." ⁶

While the results of this experiment do not bear directly upon our particular problem, there is an indirect reference. If we go through his tables and obtain the average memory value of the quarter page shown four times, the half page shown twice, and the full page shown once, and reduce these to ratios, we obtain the following:

Quarter page shown 4 times has a ratio of 100.

Half page shown 2 times has a ratio of 106.

Full page shown 1 time has a ratio of 132.

METHOD

The object of the experiment was to discover the memory relationship existing between a full-page advertisement appearing once, a half-page advertisement appearing twice, a quarter-page advertisement appearing four times, and an eighth-page advertisement appearing eight times. By this method each advertisement occupied eventually the same amount of space. The small advertisements were, however, repeated increasingly more times the smaller they became, so that they appeared 1, 2, 4, and 8 times. Put in other words, the repetitions increased in a geometrical progression. But as the number of repetitions increased in this manner, the area decreased in a geometrical progression. This means that we compared the influence of two factors, size and frequency of stimulation, in forming associations. Strong's results, mentioned above, show that size is the more important factor.

Strong's results indicate, in the second place, that, to obtain the maximum effect, the space should not be divided. Divided repetitions of the space are less effective than the simultaneous presentation of the total space at one time. On both counts, these conclusions may be indicted by the traditional psychology.

The material used in the experiment was taken from the October, 1913, number of the *Cosmopolitan Magazine*. Several advertisements were cut from the advertising section and a total of 24 selected, —6 full pages, 6 half pages, and the same number of quarter and eighth pages. Care was taken to eliminate those advertisements which were of great familiarity. The necessary duplications were secured from seven other copies of the same magazine. In all there were: one copy of each of the six full-page advertisements, two copies of each of the half-page advertisements, four of each of the quarter-pages, and eight of each of the eighth-pages.

⁶ Strong, E. K., Jr., *Psych. Rev.*, Vol. XXI, page 148.

These advertisements were neatly mounted on the pages of a portion of the advertising section of one of the magazines in such a manner that no two appeared on any one page. These pages, 24 in all, were inserted in the back of a magazine from which all other advertising matter had been removed. When completed, the dummy resembled an ordinary magazine in all respects.

Each subject was handed the dummy and asked to look over the advertising section for five minutes. When the allotted time had expired, he was asked to write down all the advertisements he remembered and everything in them that he recalled. These were the only directions given.

Records were received from 200 subjects, 100 men and 100 women, students in the course in introductory psychology at the University of Michigan. In the experiments performed during the first semester, 50 men and 75 women were used. During the second semester, the experiment was repeated with a different dummy made up in exactly the same way as the one already described, and results obtained from 50 men and 25 women.

The records obtained were carefully gone over and each reply on the papers graded, the following points being considered: (1) The article, (2) pictures, (3) catch phrases, head-lines, and descriptive matter, (4) name and location of firm, (5) size of advertisement or number of repetitions.

Throughout the entire experiment we endeavored to duplicate as far as possible actual advertising conditions. Instead of pasting the advertisements on flat surfaces, we put them in an actual magazine where the curving of the leaves might hide parts of some of the advertisements. Instead of allowing a certain fixed time for the perusal of each page, we allotted a certain time for going through the whole advertising section, allowing the subject to distribute his time as he wished. To judge from Strong's results, this method of procedure would give a lower relative value to the effect of repetition than allowing a certain fixed time per page. Strong's results show that if the sheets are shown at a rate of one per second, the ratio of the average for one appearance of an advertisement is 1.00, for two appearances is 1.31, and for four appearances, 1.71. When the subjects looked at the sheets at their leisure, the following ratios were obtained. One appearance, 1.00; two appearances, 1.19; four appearances, 1.53.⁷ When we are looking at the sheets at our leisure, the natural tendency is to pay less attention to those things which are familiar and concentrate more upon the unfamiliar.

Furthermore, in our effort to imitate advertising conditions, we

⁷ Strong, E. K., Jr., *Psych. Rev.*, Vol. XXI., page 146.

used recall memory rather than recognition memory, as was done by Strong. Strong's reasons for insisting that the recognition test is the only proper one to employ in such experiments are given in the following quotation. "Psychologically the situation which most advertising is aimed to meet is, first and primarily, the development of a very strong associative bond between a need for a commodity and a trade name, as need of soap and Ivory, and, second, the development of a very favorable attitude toward that trade name. There is no desire to develop associative bonds between a certain magazine and the advertisements displayed in it. Inherently, then, a recall test is of little or no value. . . . For the attitude of the reader has been directed not to connecting a need with a remedy, but to praise of an advertisement as an advertisement. The recognition test, on the other hand, tests what the reader paid attention to originally when he looked through the magazine. . . . The recognition test then determines which advertisements were noticed originally and which were not. And when degrees of certainty of the recognition are asked for, then we obtain some light also as to the strength of the impression."⁸

Does the recognition value test this associative bond between a need for a commodity and a trade name better than the recall test does? And, secondly, does recall test the closeness of association between the medium and the advertisement better than the recognition test does? In the writer's opinion there is very little, if any, difference in the ultimate kinds of associations tested by the two. An analysis of the situation will bring out such differences as do exist. In the recall test the order of events is as follows: perception, retention, recall, recognition. In the recognition test the events are somewhat different, being: perception, retention, re-perception, recognition.

The most immediate and striking difference is that the recognition test should give a higher memory value than the recall test. For the re-perception must arouse many associative tendencies which are not strong enough to bring about recall. That this is the case is proved by the work of Scott,⁹ who found that the recognition test gave for sense material practically double the memory value which was obtained by the recall test.

Another difference is that in one case we have the recognition of an image, in the other, the recognition of a perceptual object. In either case the recognition process is the same general type of thing. In the recognition test, it is true, the object given by the re-perception may be compared with the memory image of the same object, which is

⁸ Strong, E. K., Jr., *Psych. Rev.*, Vol. XXI., page 139.

⁹ Scott, W. D., "Psychology of Advertising," pages 168-169. See also page 478 of this paper.

brought up by recall. But even if this should take place, there must be a recognition of at least one of them, either the object or the idea.

According to psychological convention, recognition may depend upon one or more of three things. In the first place, it is often ascribed to associations of time, place, etc. If we are able to put the recalled idea or the re-perceived object into its proper setting, it is recognized. Recognition of this sort is most properly linked up with experiences which occur infrequently. For if such an experience happened many times and in many places, it would be difficult to get one setting which would properly identify it. Any one setting—the particular one depending upon the laws of frequency, intensity, etc.—would give recognition, but would not guarantee the identity of the object from time to time. In this kind of recognition, the focus of consciousness undoubtedly goes from the recalled idea or represented object to the associated setting, for the recognition depends upon the clear apprehension of the time and place associations.

The second type of recognition may be said to be due to motor associations. This is probably because we have met the remembered object in so many different situations that an exact sensory recognition is impossible. If the object does recur repeatedly, however, it is very probable that we will have formed either habitual reactions with reference to it, or will have developed an attitude towards it. This is the type of recognition involved in our memory for such things as the multiplication table, familiar words in foreign languages, articles in common use, and so on. In this connection, recognition is unquestioned if the movement is unimpeded or accomplishes its customary end without hindrance. Here, the focus of consciousness is on the thing recognized, and it tends to become more and more so the more customary the habits and attitudes become.

The third type of theory is that which identifies recognition and the "feeling" of familiarity. The origin of the "feeling" of familiarity is in dispute. It is sometimes called a judgment, sometimes a pure feeling. But in either case it must depend upon cognitive, hence, associative factors. Another possibility is that when an object first stimulates a sense organ, the resulting nerve current must overcome considerable resistance at the synapses. The resistance is partially worn down by the first stimulation, so that when the object reappears the nerve current resulting from it has an easier time in getting to its destination. This would make recognition practically synonymous with ease of apprehension. To be sure, material is more easily apprehended when seen a second time, but that is more a matter of attention and perception than it is of recognition. It seems that the "feeling" of familiarity is much more likely to consist either of a mass of partially aroused associations of time, place, etc., which

are not definitely in the focus of consciousness, or of habitual movements or attitudes, which again lie in the fringe of consciousness. Either condition would make attention focussed on the image or object which was recognized rather than on the associations which make the recognition.

There is yet another difference between the recall and recognition memories. The recall depends upon immediately antecedent associations, whereas the recognition memory does not. The possibility of recall memory depends upon the strength of the associative tendency. If the associative bond is strong enough, the idea is recalled and generally recognized. This is not the case with recognition memory. Here there is no association which is necessarily just antecedent. The presence of perceptual data makes possible the recognition of the perceived object. This leads one to believe that the anticipation and subsequent identification of some portion of the object which at first does not strike the eye may be an important part of recognition in such a test.

To be proper material for a memory test in advertising, the material must be relatively unfamiliar. When it is recalled, its very unfamiliarity would lead to recognition of the first type discussed above. That means an awareness, more or less definite, of the associations of time, place, etc. There is necessarily a direct reference back to the magazine, or series of advertisements, provided they are separated from the magazine. This makes it appear unavoidable that there should be an association formed between the advertisement and the medium in which it appeared. One obvious way to avoid this is to advertise in so many magazines that recognition of the first type is improbable, but that of the second or third class very likely. It seems probable, then, that whichever form of memory is used there is a direct reference back to the medium in which the advertisement appeared. This is not as objectionable a condition as Strong seems to think. In the first place, the association between the advertisement and a magazine which guarantees its advertisements may be a very desirable condition of affairs. In the second place, the writer can not see how the association between the advertisement and the magazine is necessarily to prevent the association between the need and the trade name which Strong refers to. The association must start somewhere. The various ideas aroused are the important considerations. If the need brings up the idea of the magazine and this in turn brings up the notion of the trade name of a member of a certain class of commodity, the advertisement has fulfilled its function. It is obviously true that an advertisement which has a high memory value may have a very low motive power. But not even recognition memory can measure the actual pulling power of an advertisement.

As yet, we have touched only incidentally the all-important question of the development of a strong associative bond between the need for a commodity and a trade name, as need of soap and Ivory. The recognition test measures the strength of the associative bond between Ivory soap and the time, place, etc., of its appearance, not the strength of the association between the need for soap and the name Ivory. The recall test, on the other hand, very probably does measure the strength of such an association. The procedure is somewhat as follows. A person glances at a certain number of advertisements in a magazine, among them a certain percentage of soap advertisements. When asked to recall the advertisements, introspection shows that he often, if not always, classifies them in terms of commodity, as, for example, soap. The class name, or the need, is then in mind, and the particular soaps which are called up depend upon the relative strength of the various associations. It would seem, then, that recall memory is even a better test than recognition memory of the strength of the associative bond between the need for the commodity and the trade name.

Recall memory has another advantage, also, in any advertising test. It makes it possible to pick out those parts of each advertisement which, on the average, had the highest memory value, in that way enabling the advertiser to retain the good features of his display and eliminate the poorer ones. With the recognition test as described by Strong, it is impossible to separate those factors. In fact, the whole advertisement may be recognized because of the recognition of one word, picture, number, or anything else which appears in it.

EXPERIMENTAL RESULTS

The experimental work was done by Mr. George Deuble, an advanced student in the psychology of advertising at the University of Michigan. The results of the experimental data were put into their final form by the writer.

The results received from the subjects were carefully graded and worked out in various ways.

1. In the first place, the average memory value of each advertisement was obtained by dividing the total number of credits it received by the highest total number of credits that it could possibly have received,—the number of subjects multiplied by 5, since each advertisement was graded on 5 points. This gave the "group" memory for each advertisement. The results for the different page divisions were then obtained by adding the averages for each kind and dividing by 12, the number of advertisements of that size.

Because of the high average deviation obtained by this method,

it was decided to work the results through by the Order of Merit Method. Since both methods gave almost identical results, it will be necessary to discuss but one.

In the table below are given the average results obtained for the different page divisions by the men, the women, and both the men and the women. The results are given in percentages. The men, for example, remembered practically 1/5 of what was to be remembered about the full-page advertisements; the women remembered slightly less. Av. = average; A. D. = average deviation.

TABLE SHOWING "GROUP" MEMORY

	Men		Women		Both	
	Av.	A. D.	Av.	A. D.	Av.	A. D.
Full page.....	21.6	0.89	19.8	0.98	20.7	0.94
Half page.....	18.2	0.59	18.6	0.80	18.4	0.69
Quarter page.....	17.7	0.58	17.4	0.69	17.6	0.64
Eighth page.....	23.0	0.53	23.9	0.63	23.5	0.58
Average.....	20.1	0.65	19.9	0.78	20.0	0.71

These results show that the eighth page shown eight times has somewhat the highest memory value for both sexes. The full page shown once is next, the half page shown twice is third, and the quarter page shown four times is the worst arrangement for both sexes as far as memory value is concerned.

The men have somewhat better memories for the full-page advertisements than have the women; the women, on the other hand, show better memories for the eighth-page advertisements shown eight times. This probably means that the men are more influenced by magnitude, whereas the women are more affected by repetition.

Another peculiar phenomenon indicated by the table is that up to a certain limit size is a greater factor in memory than frequency of repetition. Past this limit, however, frequency becomes the more important consideration. This will be more plainly seen if the table given above is transformed into a table of ratios. The results for the full page are taken as the standard, and the others reduced to ratios of it. Such a table follows:

	Men	Women	Both
Full page.....	100	100	100
Half page.....	84	94	89
Quarter page.....	82	88	85
Eighth page.....	107	121	114

This table indicates that at least more than 4 appearances are necessary to compensate for size. Somewhere between 4 and 8, the

number of appearances becomes the more important factor, until when there have been 8 appearances, the memory value rises, considerably above that brought about by size alone. It would seem that below 5 appearances, at least, size is a more important factor than frequency. It must be kept in mind, however, that these appearances all occurred within a very few minutes. Had they been separated by longer intervals, quite different results might have been obtained.

2. The second method of working out the results was almost the exact opposite of that already discussed. It consisted in finding out the total number of persons who remembered anything at all about the different advertisements and from this data obtaining the total number of times each size was mentioned. This way of recording the results makes the barest mention of an advertisement equal to a very complete description of it. The table showing the total number of times each size of advertisement was mentioned follows:

	Men	Women	Both
Full page.....	242	242	484
Half page.....	236	248	484
Quarter page.....	238	239	477
Eighth page.....	302	325	627

This way of working out the results indicates that for the men the eighth page is best, the full page next, the quarter is third, and the half last. For the women, the eighth is best, the half next, the full page is third, and the quarter is the poorest of all. The combined results show the eighth page to be the best, the full and half tied for second place, and the quarter page last. These results are strikingly like those obtained in part 1 of the paper.

Several other points should be mentioned. With both the men and the women, the results for the full, half, and quarter pages are very much alike, the maximum difference being 9. These differences are so slight that they mean practically nothing. The eighth page shown eight times, however, rises head and shoulders above any of the other sizes as far as memory value is concerned.

Again we find that the men are relatively more affected by sheer size, whereas the women are more influenced both absolutely and relatively by frequency of repetition.

3. If we consider the results in still another way, namely, by finding the average memory per person for the different sizes of advertisements, we shall obtain some additional data. Since relatively few persons recalled the greater number of the advertisements, the "group" memory is not an indication of the strength of the

impression made by each advertisement upon each individual. If we divide the total credits received by each advertisement by the number of persons who remembered that advertisement, we obtain the "individual" memory for each advertisement. Averaging these results as was done in part 1 of this paper, we obtain the following table:

	Men		Women		Both	
	Av.	A. D.	Av.	A. D.	Av.	A. D.
Full.....	50.1	4.17	48.8	5.35	49.5	4.76
Half.....	47.6	5.40	44.2	3.70	45.9	4.55
Quarter.....	42.9	4.25	45.2	3.60	44.1	3.93
Eighth.....	43.9	2.14	46.8	3.00	45.4	2.57
Average.....	46.1	3.99	46.2	3.91	46.2	3.95

This table indicates that the full-page advertisement shown once has the highest "individual" memory value. The two sexes are unanimous to that extent; from there on they differ somewhat. In general, however, the half page is next, the eighth page is third, and the quarter page is last. This table indicates, as do the previous ones, that the men are more influenced by size than are the women, while the women are more influenced by repetition than are the men.

Since the first and third ways of considering the results bring out somewhat different conclusions, it will be interesting to see if we can combine them to give an average value to the two tendencies which are obviously at work. Since it is impossible to determine the actual relative strength of the two tendencies, we shall, for purposes of comparison, consider them equal. The arithmetic mean is, then, as good a method of combination as any. In order to obtain this, we reduce the table giving the "group" memory and the one giving the "individual" memory to ratios and average them. This gives the following results:

	Men	Women	Both
Full page.....	104	94	99
Half page.....	94	86	90
Quarter page.....	88	85	86
Eighth page.....	100	100	100

This table means that in the long run it is a matter of practical indifference whether the eighth page shown eight times or the full page shown once is used. Either is better than the half page shown twice or the quarter page shown four times. In both types of memory the quarter page is the worst size of any. The moral is, therefore, to use it sparingly.

If the advertiser wishes to influence the men, the full page is probably the best means to employ. If he wishes to persuade the women, the eighth page shown eight times is probably best. If he wishes to affect many persons to a slight degree, the eighth page is best, but should he desire to influence a fewer number of persons somewhat more strongly, the full page is his best means of doing so.

4. We turn now to an entirely different discussion of the results and shall consider the question of what part of the advertisement is the best remembered. It will be recalled that psychologically, the aim of advertising is to form a strong associative bond between a need and the trade name. The results were, therefore, tabulated to show how many times the following things were mentioned in each advertisement: picture; name of company; catch phrase; head line; etc.; name and description of article. The results were, as usual, averaged for the different sizes of advertisements used. Since the different sizes had different memory values, the actual figures are reduced to percentages in the tables, for it is primarily the relative values of these things in which we are interested. The tables follow:

Men

	Picture	Company	Phrase	Article
Full page.....	33.6	7.2	17.2	42.0
Half page.....	37.0	10.0	13.8	39.2
Quarter page.....	40.4	6.2	15.9	37.5
Eighth page.....	32.8	9.4	23.8	34.0
Average.....	35.6	8.3	18.0	38.1

Women

Full page.....	37.4	6.6	14.3	41.7
Half page.....	43.6	4.3	13.6	38.8
Quarter page.....	44.0	5.2	12.4	38.4
Eighth page.....	34.7	9.7	25.6	30.2
Average.....	39.6	6.5	16.4	37.3

Men and Women

Full page.....	35.5	6.9	15.7	41.8
Half page.....	40.3	7.1	13.7	38.9
Quarter page.....	42.3	5.7	14.1	38.0
Eighth page.....	33.8	9.5	24.7	32.1
Average.....	37.9	7.3	17.1	37.7

These tables show that the men are more likely to remember the advertised article than anything else in the advertisement; the women, on the other hand, are slightly more likely to recall the pictures. Considering the results of both men and women, the pictures are very slightly more likely to be recalled than the name of the article.

Since, psychologically considered, the aim of advertising is to

form a connection between a need and the name of an article, that size which is most likely to lead to the recall of the article will be the best size to employ. This is clearly found for both sexes in the full-page advertisements. There is a steady decrease in the memory value of the article with decrease in the size of the space used. The effect of repetition, as was found with the eighth page shown eight times, was to emphasize such things as the name of the company and more particularly to bring to mind with greater vividness the catch phrases and head-lines which ordinarily do not mention the name of the advertised article at all.

SUMMARY

1. Any method of scoring the results shows that the eighth page shown eight times has the highest "group" memory value, together with a relatively low mean variation. With "individual" memory, it ranks third. The use of frequent, small advertisements tends to emphasize the relatively more unimportant parts of the advertisement, such as catch phrases and firm name.

2. The quarter page has, in general, the lowest memory value, together with the lowest mean variation. Pictures are more likely to be remembered with this size of advertisement than is the name of the article. In fact, this size has the highest memory value for pictures.

3. The half-page advertisement is in third place with the "group" memory, is in second position with "individual" memory, and is in second place also as regards the memory for both pictures and article.

4. The full-page advertisement is second in "group" memory and first in "individual" memory. Its use is also more likely to bring about the recall of the advertised article than any other size. It is, therefore, a good size. We feel justified in saying that, everything considered, as far as memory values are concerned, it is the best of any of the sizes used in this experiment.

The size of the advertisement to be used depends upon the motive of the advertiser. Since the main choice evidently lies between the eighth page shown eight times and the full page shown once, we shall consider those possibilities only. It is plainly apparent that a fairly large part of the advertising which is done must rely for its adequacy upon memory. There is a relatively small amount of advertising appearing in the magazines which demands an instant response, or where an instant response is possible. The usual endeavor is to make so strong and favorable an impression upon the reader that when he gets to a store to purchase a certain kind of commodity, he will ask for that particular kind which he saw advertised and ask for it by name. It seems fairly obvious that the full-

page advertisement is the best kind to bring about this condition. It has a high "group" and "individual" memory, and leads to a greater likelihood of recalling the product than any other kind.

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TYPES OF PRAGMATIST THEORY OF TRUTH¹

PRAGMATIST theory of truth has been advanced as a revision of antiquated solutions of problems handed down to it by tradition, not discovered and formulated by pragmatism itself. Therefore its theses largely take the form of answers to questions put in terms chosen by its predecessors and opponents and by no means suited to bring out the point in the new method of dealing with them. For novel theories have a natural tendency to modify the meaning of the inquiry in response to which they came into existence. But old formulæ are hostile to new interpretation. Hence the inevitable complication in the shape of mere logomachy and other dead weight which have occupied such a conspicuous place in controversies about the new theory of truth. For instance, truth, it is said, consists in the agreement between fact and idea; but what kind of agreement? This is a familiar starting-point for expounding the pragmatist theory. It is thus taken for granted that this question will always remain a very interesting and important one, no matter what the terms "fact" and "idea" mean (the interpretation of these terms being one of the well-known points of disagreement between pragmatists and their critics). This, it seems to me, leads to undue emphasis on exceedingly negative aspects of pragmatism—considering the lack of meaning in the term agreement as such.

"Is a true idea true all the time it exists, or is it made true only by the process of verification," is another question which, for similar reasons, we may hope will soon cease forever to give rise to philosophic dispute. This is the kind of complication which I am not going to dwell upon in this paper because, as I said, I believe these complications are due largely to the use of expressions and references to problems whose gradually developed meaning does not facilitate their utilization in exhibiting pragmatic views. If I am right, it would perhaps seem as if pragmatists had made a strategical mistake in their insistence on meeting their enemy on his own soil.

¹ This paper was read at one of the bi-weekly philosophical conferences of graduate students at Columbia University, in March, 1915. Published here in a slightly revised form, it retains its original character of a brief review and does not pretend to add anything new to what has already been written on the subject.

But on the other hand, an adequate terminology is never created immediately when new conceptions replace old ones, nor would it always be pedagogically desirable. Anyhow, leaving matters of terminology to adjust themselves in the course of time, I will now try to approach the more "pragmatically" significant features of the pragmatist theory of truth.

Such a feature is the proclamation of "satisfaction" as relevant to the determination of truth. Thus loosely stated, the theory covers a boundless field of subdivisions issuing from different interpretations, most of which I shall not mention in this paper. There is, fortunately, a fairly clear-cut and distinct "something" with which the specifically pragmatist versions of the "satisfaction" theory seem to be bound up, both historically and logically: namely, the pragmatic analysis of the meaning and essential function of ideas, propositions, and beliefs. In other words, whatever the starting-points of the expositions of pragmatist truth-theory have been, its most important logical foundation can be traced back to a theory which belongs primarily to psychology, not to logic or metaphysics. At first sight, this would seem to limit its applicability and consequences to matters of psychological interest only. Pragmatism has, indeed, been accused of confusing psychological and logical inquiry, of substituting the question "what is held as true" for "what is true," etc. While I, for my part, would lay much stress on the "psychologistic" origin of pragmatism as I understand it, I do not infer that psychological analysis is its sole legitimate scope. On the contrary, formulated as a theory of truth, it is looking toward things of wider perspective and more universal human interest.

In our every-day metaphysical quarrels with our neighbors we do not and can not appeal to psychological arguments (in many cases it would even be an insult to the other party to do so). But psychological information will prove relevant here in various ways, *e. g.*, in giving us a clearer insight into the meaning of our opponent's belief as well as into what made him adopt it, and even in changing our own beliefs so far as these rest, as they always more or less do, on the authority of others.

Now, the pragmatic analysis of belief referred to in this connection is the outgrowth of a psychological theory which gives particular attention to the elements of action in all processes of judgment and belief. It is known as "instrumentalism" because it treats intellectual concepts as instruments for forming and working with ideas identified with "plans of action." The "pragmatic meaning" of a belief is tested by its ability to "make a difference" not only in thought, but in action (which tends to confine *consciously* pragmatic belief to belief in the satisfaction to be derived from a

certain course of action). This "theory of meaning" is, in its more moderate formulations, accepted by psychologists far outside the camp of pragmatism proper. Its application to philosophical controversies, known as the pragmatic method, with its voluminous appendix of so-called "modern nominalism," etc., is a pragmatism of a distinct character which is logically independent of the various doctrines partly derived from the same psychological presuppositions; and which I shall not go into any further here except in so far as I shall have occasion to refer to it again in examining the theory of truth.

That theory of truth has been defined thus far merely as a correlation of the terms "satisfaction" and "truth," founded on a psychological "theory of meaning." In giving it a more distinct definition we have still to choose among a variety of versions, due partly to the lack of a consistent terminology, partly to real "pragmatic" divergences in the intentions of their originators. We are familiar with the endless disputes found in essays and articles on pragmatism, about matters which ought to have been settled preliminary to the announcement of any theory of truth, such as the relation of the contents of an idea to its truth and of its truth to the criterion of its truth. Whether a pragmatist who says that the idea "*a is b*" is verified, *e. g.*, by its "satisfactory working," always means that the same idea is then unquestionably *true*, and, if so, that *a is surely b*, is one of those points on which, alas, much uncertainty still seems to prevail. This is a circumstance that in an exhaustive classification of "pragmatisms" (and quasi-pragmatisms) will have to be taken into account. But nothing approaching a comprehensive survey of the field is the object of my paper. Neither am I concerned primarily with the problem of interpreting correctly the principal intentions of the pragmatists themselves. What I am presently going to do is to outline a comparison between the main types of possible and reasonable interpretations from what is, in my opinion, ultimately the most promising point of view.

The first type we shall consider is that which gives up the point, or what most often appears to be the point, of pragmatist truth-conception, by insisting on recognizing only certain *specific* satisfaction as relevant to the truth of a belief. This means retaining, in a way, something of the intellectualist's attitude. Whether it coincides exactly with any previously formulated theory or not, it *can* at any rate be expressed in "pre-pragmatic" terms, confining the pragmatic analysis entirely to the *meaning* of a belief instead of its truth. Here belongs the theory that the truth of an idea or belief consists in that satisfactory outcome of deliberate action, the expectation of which formed the whole pragmatic meaning of the idea.

The truth of any pragmatically interpreted idea consists in the specific satisfaction experienced on acting upon the idea, because the content of the idea was just the expectation of that experience. This is a characterization of truth which follows strictly from radical pragmatic theory of meaning combined directly with common-sense truth-conception, according to which "it is true that *a* is *b*" means simply "*a* is *b*" and nothing more. Similarly, taking pragmatism as a theory of the *criterion* of truth, or of the nature of *validated* truth, as Mr. Schiller calls it, we find it sometimes interpreted as meaning simply that only the actual experience of *that* satisfaction which represents the whole object and intention of the idea, *proves* it to be true. This is regular old empiricism, again turned into pragmatism only inasmuch as it is applied to pragmatically interpreted belief. It can hardly be held as standing for true or typical pragmatism, however, since it even implies the feature of skepticism which pragmatists find so discrediting to traditional empiricism. Yet I can't help noticing an undercurrent of this sort of reasoning in, *e. g.*, Schiller's "postulate" theory with its share in the famous claim of pragmatism to reconcile "reason" and "faith": even the apparently most secure "truths" of "reason," the axioms, are after all validated only so far as our *experience* of their "working" goes; in a sense they always remain postulates, when applied to the ever unknowable future, and that is why they must not be referred to as arguments against the aspirations of "faith." This differs from skepticism proper in reckoning with the *possibility* of reaching full and final truth, but it puts emphasis on the uncertainty with regard to any part of an hypothesis or belief that has not yet been "fulfilled" in experience.

Another attempt to solve the conflict between reason and faith has been made, on the same basis of pragmatic theory of meaning and empiricist theory of criterion: instead of pointing out that axioms, scientific laws, etc., have only "pragmatic truth," ever subject to change, some writers have tried to reduce the truth which religious ideas are *supposed* to have to the pragmatic truth, already validated to a large extent. This is a scheme for bringing religious and scientific hypotheses on a level, which has met with emphatic rejection from orthodox religious quarters, as would be expected. There is nothing to hinder a combination of both arguments, making this the pragmatic meaning of pragmatist theory of truth: laws of science are only *pragmatically* true, and religious beliefs are, indeed, *pragmatically true*. (Neither of these propositions involves a new conception of truth, for the meaning may be expressed, even more adequately, in this way: theories of science and religion, being pragmatic in character, have been found true just so far as applied in practise.)

To the same group, for my present purpose, belongs even the theory that *any* satisfactory outcome of the act which is the practical expression of a belief makes it "true in so far forth" (as James puts it), as long as the emphasis is laid on "so far forth" rather than on "true." It may be understood as merely eliminating specific satisfaction from the essential meaning of a belief, while retaining the limitation of "validated" truth to *experienced* truth.

So much for pragmatist revival of that type of strict empiricism which is the most negative of all doctrines concerning the criterion of truth. It admits only, as Professor Lovejoy points out, a useless "*ex post facto*" truth; its criterion being the experience by which predictions are verified in the moment they cease to exist as predictions. Lovejoy quotes, in support of this interpretation, the well-known pragmatist formula that ideas are *made* true only by their verification, and observes that such empiricism does not give us "what we really want," namely, "some means of telling what predictions are to be accepted as sound while they are still predictions."² But this is not the only kind of traditional empiricism, nor is it the only kind that has been incorporated into pragmatist theory of truth. As Professor Dewey remarks: "There are cases in which an idea ceases to exist as soon as it is made true. . . . Such is, however, conspicuously not the case with our scientific ideas."³ Thus, taking verification in the sense in which it is, in fact, understood in science, we get what Lovejoy has also listed as pragmatism number 4: "those *general* propositions are true which so far in past experience, have had their implied predictions realized." To make it sound more pragmatistic, we need only translate "predictions" into "expectations of satisfactory experience," which is legitimate since all predictions are, according to pragmatic "theory of meaning," essentially about satisfaction to be experienced. This version differs from the one first mentioned in making experienced satisfaction relevant to the truth of other particular satisfaction; but inasmuch as the relation of identity is here only exchanged for that of logical coherence,⁴ it still keeps within the limits of a pragmatism not presenting any significant novelty in its theory of truth.

A second main type of pragmatism is a criterion-theory which we get whenever we admit, as in the last case of the first type, that more truth than the truth already experienced, of a given idea or belief, is a matter for interested inquiry, and make this truth somehow confirmed or foretold by *any* satisfaction experienced where it has

² In "The Thirteen Pragmatisms." This JOURNAL, vol. V, page 5.

³ See Dewey, "The Influence of Darwin on Philosophy, and other Essays." 1910. Page 146.

⁴ What this logical coherence ultimately consists in is not a matter for discussion in this paper.

been already carried out in action. I do not want to make too much of what is perhaps mostly pragmatism as figuring in the minds of its critics, although it seems to me that only here a really new criterion is introduced. Much of the criticism pertaining to this interpretation of pragmatism has been due to misunderstanding of pragmatist terminology, and the really justified part of it has often been formulated so as to make it misunderstood in return.

Before proceeding to make clear just what I mean by this any-satisfaction theory of truth, I want to say a word about the resemblance at first glance between this part of my analysis and the familiar criticism of pragmatism expressed, *e. g.*, in the statement of Mr. Russell: "The essential novelty of pragmatism is that it admits as a ground of belief any satisfaction to be derived from entertaining the belief, not merely the theoretic satisfaction which is sought by science."⁵ It will be recalled that I have, for the sake of simplification, granted the main point of pragmatic theory of meaning, thus leaving the whole concept of "theoretic satisfaction" out of consideration altogether. I am going to illustrate this version of pragmatism again with the type of belief to which pragmatist truth-theory is constantly applied: namely, expectations involved in religious faith. Whenever we say, with James, that the "active faiths of individuals" in "religious hypotheses about the universe" are "the experimental tests by which they are verified"⁶ and dismiss the translation of "verified" into "made true only in so far forth" (see above), we make the sentence mean that the expectation of, say, satisfactory experiences in future life is somehow warranted by the *present* satisfactory outcome of the "active faith" in question. This assertion may be due to regarding the two sets of expectations as logically coherent, so as to make the scientific criterion applicable—or, it may rest on express refusal to submit to the restrictive rules of scientific logic. The latter is what I mean by the "any-satisfaction" theory in its pragmatically significant form.

Professor Dewey has touched one of its weak points in his often quoted question: "If ideas terminate in good consequences, but yet the goodness of the consequences was no part of the intention of an idea, does the goodness have any verifying force?"⁷ This is, however, not exactly what I wished to make the "specific differentia" of this kind of radical pragmatism. For in the typical case like the one just examined both sets of "good consequences," the earthly and the eternal ones, are often parts of the whole pragmatic intention of the religious idea. This is what gives it an illusory outward resem-

⁵ "Philosophical Essays." 1910. Page 108.

⁶ Preface to "Will to Believe."

⁷ This JOURNAL, Vol. V., page 93.

blance to the scientific case. Thus, the illegitimate inference comes from merely recognizing the predictions already realized and those yet to be fulfilled as "parts" of the same hypothesis, without raising the question whether the hypothesis as a whole is made up only of logically coherent parts or not. If this would be feasible, we could get as much additional confirmation as we ever wanted for any belief by arbitrarily combining it, into one complex idea, with other beliefs fairly well guaranteed as to their truth. This is undoubtedly what people to a large extent do, but inasmuch as it is done unconsciously and by mistake, it can not be proclaimed as psychologically "normal" or universal human procedure. What it would mean, virtually, is the full freedom of believing whatever we want to be true. The possibility of conscious and deliberate defiance of logical restrictions, in favor of ideas dear to our hearts, has been affirmed by pragmatists (not only indirectly, through the "any-satisfaction" theory), but does not belong to the concerns of pragmatism proper, since it has no logical connection with the pragmatic analysis of the meaning of belief.

To sum up what I have thus far tried to bring forth: no matter what terminology we use, so long as we regard any possible particular satisfaction as a legitimate object for expectation, conjecturing, and inquiry, we find ourselves engaged in comparing particular expectations and experiences as to their mutual relations of identity, coherence, discrepancy, etc., and *we can not get rid of the problems* attached of old to this part of the matter by simply introducing the idea of "satisfaction" into the field.

But this means that the pragmatic analysis of belief has not yet been utilized to its full extent. When that is done, we get a third type of pragmatism which I shall touch upon in a few words.

The prominence given to the element of action in the modern concept of belief originated, largely, in biological considerations and external observation. But the outcome, in the form of revised theories concerning the function of intelligence, has helped to put introspective analysis on a new track. And it may be found that the most essential distinguishing mark of what we call belief, as contrasted with a mere image or perception, is that it involves a tendency to action or suspense of action, or at least an adjustment of our conditional activities. Likewise, the whole psychological difference between logical contradiction and compatibility, in the relations between our ideas, tends to reduce itself to a matter of action. Laws of thinking will appear as habits of action, etc. However that may be, it must not be deemed too unreasonable, as an experiment, to disregard the presentative and representative elements accompanying the elements of action, as we disregard verbal formu-

lations, in determining the *fundamental meaning* of a belief. But the employment of this method for discriminating between and identifying beliefs will necessarily affect, in one important respect, the conception of truth: In this case, at last, any satisfaction is equally relevant to truth, inasmuch as no particular expectation belongs to the contents of the belief judged to be true. The question is rather how any experience could, on this basis, be attributed to the working of any particular belief at all. I shall not go further into this, although it has its important place among serious interpretations of pragmatism, and even pragmatists who do not advocate it systematically seem to lean toward this standpoint whenever they try to make the adoption of an idea a matter of free choice and, in argumentation, appeal, more or less expressly, to our "will to believe." One of the dangers of this position is that of getting entangled in the "as if" formula—a common feature in pragmatist text. When "it is true that *a* is *b*" is said to mean "act as if *a* were *b*," *i. e.*, "as you would if you believed that *a* is *b*,"⁸ the controlling function of the element of (perceptual or ideational) presentation is implicitly admitted. It is admitted that the appeal to our active nature in a statement of fact offered for belief is not the same as in a mere injunction just as a mere plan of action is not the same as a belief.

Up to this point, we have been comparing interpretations of pragmatism within the limits drawn by the preliminary definition, the declaration that satisfaction is relevant to the recognition of truth. In the various versions compared we have been dealing with satisfaction understood as satisfactory result of action. Now, we find in the writings of pragmatists frequent references to the satisfactory working of an idea or belief. As we have seen, there is a case in which the two things coincide completely, namely, when belief is identified with action. But even in cases where this identification is not attempted, the two sets of satisfactory consequences do practically coincide, so long as the experienced satisfaction is connected with the idea as a consequence of its practical application through action. Therefore, the pragmatist formulæ which explicitly connect the satisfactory working of a *belief* with its truth lend themselves to subdivision into theories in the main identical with those which we have gone over.

The really peculiar significance of the latter formulation is rather that it recognizes in truth-predication a predication about a belief as contrasted, not with action, but with any part of the contents of the same belief. This gives us a clue to an interpretation of prag-

⁸ This "as if" is not to be confused with the "as if," of, *e. g.*, Vaihinger's "Philosophie des Als Ob," which is a very different thing.

matist truth-theory essentially different from any of those mentioned above.

To be sure, the foremost function of the word "true" is the merely formal one of symbolizing a repetition of the sentence pronounced as true. And Professor Dewey is certainly right in his remark that "it would be a great gain for logic and epistemology if we would always translate the noun 'truth' back into the adjective 'true' and this back into the adverb 'truly.'"⁹ Thus "it is a truth that *a* is *b*" means "*a* is truly *b*" (or simply "*a* is *b*")¹⁰ But since truth-predication is, at least formally, a predication about a belief rather than about a term in the contents of the belief, the question comes up: does not the truth of a belief somehow qualify also the belief itself, as it appears to do?

This question has probably never been answered more emphatically in the affirmative than by pragmatists when they discover in truth-predication a *valuation* of an idea and then proceed to analyze what truth-value ultimately is. "It is true that *a* is *b*" does not only say about *a* that it is truly *b*; it also says something about the whole belief that *a* is *b*, namely, that it has the *valuable* quality of being true. Since truth-predication implies recognition of value, it must be asked: what is truth-value; why is there value in truth? Here pragmatism, again in the sense of instrumentalism, takes its stand against that sort of rationalism which maintains that truth has a value *per se*, that it is valuable merely by virtue of its being the truth. In pointing to the instrumental function of truth, pragmatism shows, as James has it, "*why* we must defer" to it.¹¹ Unfortunately, this phrase is ambiguous—from meaning "why we must seek truth" it slips too easily over into meaning "why we must believe in truth" with all its peculiar implications (see above). The discovery and demonstration of the pragmatic character of truth-value does not, in itself, imply any theory as to why and what we can or must believe; in other words, it is *not a theory of truth in the same sense* as the types discussed above. Its essential meaning seems to be something like this: the theoretically correct judgment does not satisfy us on account of its theoretical correctness, but on account of its pragmatic usefulness.

It is apparently some sort of reasoning connected with this species of pragmatism that is responsible, by over-emphasizing the evaluative aspect of truth-predication, for the frequent occurrence of the terms "worth" or "value" and "truth," used *interchangeably* in pragmatist text. Thus, the formula reads: "the theoretically correct judg-

⁹ "An Experimental Theory of Knowledge," *Mind*. 1906. Page 305.

¹⁰ Cf. above, page 494.

¹¹ James, "Pragmatism," page 68.

ment is not found true (=valuable) on account of its theoretical correctness,"—while its main point would be much more generally understood and accepted if expressed in this form: "the true (=theoretically correct) judgment is not found valuable on account of its truth." . . .

This brings us straight to one of its most important consequences, the one it has in common with the whole group of historically given philosophic doctrines which deny, on various grounds, the unconditional, absolute value of truth; I mean this consequence: to admit the possibility of cases in which truth in the strict sense is not desirable; since truth has only relative, derived value, it occasionally happens that falsehood is more valuable than truth. This is where pragmatism again approaches or comes into sympathetic touch with a certain aspect of irrationalism, but in another way than in the case mentioned above. Here, it does not proclaim or propound, explicitly or implicitly, disregard of logical coherence in forming our beliefs as a psychologically possible, not to say normal procedure. What it does, in this case, is only to make us abstain from offering a person a truth merely because it is a truth, or depriving him of an illusion without first considering whether he is not better off *with* the illusion than with the corresponding truth. "Ought we ever not to believe what is better for us to believe?" James says. Change it into this: "ought we ever not to let others believe what is better for them to believe," and we get a formula of great pragmatic significance which, though it is older than pragmatism and partly independent of instrumentalism, will, perhaps, turn out the most lasting part of the pragmatist theory of truth. Let it be observed, however, that a policy of "pious fraud" toward our neighbors is as impracticable in the long run as is the closing of our own eyes to uncomfortable truths. Nor can we afford, with our present miserably small stock of knowledge, to discontinue our search for more truth. And to the philosopher there is hardly any other decent course open than to follow the advice of Benjamin Höijer, glaringly unpragmatic though it is: "Seek the Truth, and even if it carries you to the gates of Hell, why knock."

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REVIEWS AND ABSTRACTS OF LITERATURE

An Introduction to General Psychology. ROBERT MORRIS OGDEN. New York: Longmans, Green, and Company. 1914. Pp. xviii + 270.

As the title indicates, this is a brief introductory course to general psychology. The author's motives, as expressed in the preface, are to

write a brief course which will enable the beginning student to connect his psychology with every-day life and with the other sciences, and to give him a knowledge of the mind, as a whole, together with the important topics of personality and character, rather than a detailed account of the nervous system and the experimental data of sensation. He also wishes to reconstruct psychology with reference to the recent investigations on thought processes and systematically to incorporate into it "purposive directions and imageless contents."

The author defines psychology as the science of mental happenings. His book is a consistent carrying out of this view, for what we have is a description of the contents of consciousness as reported by retrospection and without any correlating with the nervous system or with conduct. There are, accordingly, no illustrations or accounts of the nervous system.

The new features of the book, as indicated above, are the topics of imageless contents, purposive directions, and personality. By imageless contents, the author means thought, which is made a fourth element of mind. It consists of (1) "notions," or imageless meaning, *e. g.*, the immediate comprehension of a geometrical proposition without any images, proofs, or diagrams; and (2) "relations," or the consciousness of particularity, equality, similarity, and identity,—*e. g.*, two images may be similar, but the consciousness of that fact is not a third image. It is thought. By purposive direction the author understands certain tendencies, conscious and unconscious, that give unity and direction to mental processes. They are manifestations either of fundamental adaptive characters rooted in all organic matter, or of habit, or of the self-activity of the Ego. They underlie all the synthetic processes of mind, such as memory and ideation, and as such, are of central importance in the explanation of mind. Whether Ogden calls directive tendencies what others call instincts and psychical dispositions, he does not say. The chapters on personality and character, which treat of such topics as the relation of body and mind, sleep, dreams, the Ego, hypnosis, telepathy, insanity, and types of character give a brief summary of present scientific opinion on these subjects.

The book is arranged systematically, is written in a clear and simple style, and has the stamp of originality. For beginners who wish to get a brief account of conscious contents in and by themselves and for their own sake, this is an excellent text.

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Spinoza Briefwechsel. Lebensschreibungen und gespräche. Übertragen und herausgegeben von CARL GEBHARDT. 2 Vols. Leipzig: Felix Meiner. 1914. Pp. xxxviii + 388 and xi + 147.

In deciding on the text that was to be the basis of his translation, the author has supplemented the "Opera Posthuma" of 1677 with numerous readings offered by the Dutch version of the same year which, strangely enough, have been disregarded in the edition of Vloten and Land. The translator has utilized the facsimiles published by Willem Meijer of the extant autograph letters, and also that scholar's Dutch translations of

Spinoza's correspondence, the publications of Leopold, Freudenthal, etc. The present translation, the best in German, has thus become the fullest outside of the Dutch tongue.

The "Introduction" briefly characterizes Spinoza's correspondents and sets forth the importance of his letters for a right understanding of his doctrine and character. The correspondence alone reveals, for instance, the existence of a tragic conflict between the intuitional and the rationalistic leanings of the philosopher, a conflict of which the latter was fully aware (p. xiv sq.). The explanatory notes, while not exhaustive, embody most of the results of recent Spinozian scholarship. The volume closes with a serviceable index, the scope of which does not extend, however, to the translator's notes.

In the volume of "*Lebensbeschreibungen*" are included Jarig Jelles's "Preface to the Opera Posthuma," the biographies or biographical notes of Lucas, Kortholt, Bayle, Colerus, and Hallmann; further, a number of documents for the most part published by Freudenthal and five pages of "Sayings" of Spinoza drawn from various sources. All told, these two volumes are exceedingly useful, although the one of biographies is, naturally, overshadowed by the book of Freudenthal.

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JOURNALS AND NEW BOOKS

PHILOSOPHICAL REVIEW. January, 1915. *The Metaphysical Implications of the Principle of Relativity* (pp. 1-16): H. W. CARR. - The principle of relativity implies that ultimate continuity, the problem of whose nature is the main problem of philosophy, is psychical, since it can not be space, time, "nor any physically real entity fixed in relation to them." *The Time Process and the Value of Human Life* (pp. 17-36): E. B. TALBOT. - What is the relation between the belief that the later stages of individual life are more important than the earlier and the problem of the relation of the individual life to the time process? Unless the belief were true, progress would be no better than retrogression, given a total of value in a human life. The value of progress is assured by the reality of the time process. *On Relations* (37-53): H. E. BLISS. - A study of the logic of relations. "Relations are modes of existence in which entities exist and by which entities are constituted into more complex entities." Relations may be both internal and external, which position is uninjured by relations of dependence, since dependence may be either "contingent or virtual." When relations constitute real entities, they are real; when they are conceived of, or thought of, etc., they are ideal, "subsisting in the relating tendency of the mind." But the final word must await the definition of "reality." *The Dilemma of Diderot* (54-71): C. BECKER. - The conflict between Diderot's metaphysics and his sentiments caused his failure to publish in his last twenty years. *Reviews of Books*: Alfred Fouil-

lée, *La Pensée et les Nouvelles Ecoles anti-intellectualistes*; W. G. EVERETT. Leon Brunschvicg, *Les Étapes de la Philosophie mathématique*; M. R. COHEN. Charles Sentroul, *Kant et Aristote*: R. A. TSANOFF. *Notices of New Books. Summaries of Articles. Notes.*

PHILOSOPHICAL REVIEW. March, 1915. *Ethics of States* (pp. 131-149): J. H. TUFTS. — The contrasts between the mortality of states and that of individuals arise from a confusion of politics and morals, and will be harmonized as soon as politics become moral. *The Principle of Relativity and Philosophical Absolutism* (pp. 150-164): F. ZNANIECKI. — The only philosophical absolutism is one founded upon the one absolute principle "the philosophical principle of relativity"—that "there is no value with regard to which others would be relative, and which itself would not be relative with regard to others." Such a philosophy must first study the relations which connect values into systems; second, must unify the totality of value-systems "in a new and universal system." *The Evolution of Values from Instincts* (pp. 165-183): W. K. WRIGHT. — Attempts to show first, that values are as primitive as instincts; second, the use of this notion for social and ethical problems; third, that it presupposes no specific theory of biology or metaphysics, although it influences every theory. *Proceedings of the Fourteenth Annual Meeting of the American Philosophical Association. Reviews of Books*: H. Wildon Carr, *The Philosophy of Change*; G. W. CUNNINGHAM. John B. Watson, *Behavior: An Introduction to Comparative Psychology*: M. F. WASHBURN. Charles Gray Shaw, *The Ego and its Place in the World*: J. A. LEIGHTON. *Notices of New Books. Summaries of Articles. Notes.*

Baudrillart, Alfred. *The German War and Catholicism*. Paris: Bloud and Gay. 1915. Pp. 316. 2s.

Graves, Lucien C. *The Natural Order of Spirit: A Psychic Study and Experience*. Boston: Sherman, French and Company. 1915. Pp. v + 365. \$1.50.

Johnston, G. A. *Selections from the Scottish Philosophy of Common Sense*. Chicago and London: Open Court Publishing Company. 1915. Pp. vii + 267. \$1.25.

More, Louis Trenchard. *The Limitations of Science*. New York: Henry Holt and Company. 1915. Pp. 268. \$1.50.

Münsterberg, Hugo. *Business Psychology*. Chicago: La Salle Extension University. 1915. Pp. xi + 296.

Prince, Morton. *The Psychology of the Kaiser: A Study of His Sentiments and His Obsessions*. Boston: Richard G. Badger. 1915. Pp. 112. 60 cents.

Webb, Clement C. J. *A History of Philosophy*. Home University Library. New York: Henry Holt and Company. 1915. Pp. 256. 50 cents.

Smith, E. M. *The Investigation of Mind in Animals*. Cambridge, England: University Press. 1915. Pp. ix + 194. 3s.

NOTES AND NEWS

THE *Psychological Bulletin* calls attention to the fact that "the new University of Frankfurt has grouped psychology with the natural sciences in the faculty of science. A recent action by the University of Missouri goes in the same direction. Students who have done no biological work in high school and who therefore have to take in the first or second college year five hours of biological science may fulfil this requirement by taking five hours of psychology. To this extent the University of Missouri recognizes psychology as a biological science."

At the Johns Hopkins University, the degree of Bachelor of Science in education has been established in connection with the college courses for teachers and the summer courses. The degree will be open to men and women. The regulations concerning the work for the new degree will be determined by an Advisory Committee of the Faculty. The title of Director of the College Courses for Teachers and of the Summer Courses has been assigned to Professor Edward F. Buchner.

DR. FRANK THILLY, professor of philosophy, has been elected dean of the College of Arts and Sciences, Cornell University, for a term of two years. He was nominated by the faculty and was elected by the trustees at the board's meeting on June 15. He succeeds Professor E. L. Nichols, whose term has expired and who will spend next year in the far east.

GEORGE PEABODY COLLEGE FOR TEACHERS has received \$8,500 from Miss Eleanor Cuyler of New York City and Mr. Thos. DeWitt Cuyler of Philadelphia, for equipping the Jesup Psychology Laboratory. This amount of money is to be spent for furniture, laboratory equipment, and psychological publications.

PROFESSOR ELLSWORTH E. FARIS, who has been filling a temporary vacancy in the University of Chicago, has been appointed associate professor of psychology in the University of Iowa, and will specialize in social psychology.

DR. S. ALEXANDER, professor of philosophy in the University of Manchester, has been appointed Gifford lecturer at the University of Glasgow for the period 1916-18.

PROFESSOR E. T. TALBERT has been appointed secretary of admissions at the University of Cincinnati and will in addition give courses in social psychology.

DR. RICHARD M. ELLIOTT, instructor in psychology at Harvard University, has been appointed instructor in psychology at Yale University.

THE publication of the *Revue de Métaphysique et de Morale* which was suspended soon after the war began has now been resumed.

DR. BENJAMIN RAND, of Harvard University, has spent the summer in London engaged on a work to be entitled "Locke and Clarke."

DR. H. T. MOORE, of Simmons College, has been appointed assistant professor of psychology in Dartmouth College.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

THE LOGIC OF JUDGMENTS OF PRACTISE

I. THEIR NATURE

IN introducing the discussion, I shall first say a word to avoid possible misunderstandings. It may be objected that such a term as practical judgment is misleading; that the term "practical judgment" is a misnomer, and a dangerous one, since all judgments by their very nature are intellectual or theoretical. Consequently, there is a danger that the term will lead us to treat as judgment and knowledge something which is not really knowledge at all and thus start us on the road which ends in mysticism or obscurantism. All this is admitted. I do not mean by practical judgment an alleged type of judgment having a different organ and source from other judgments. I mean simply a kind of judgment having a specific type of subject-matter. There are propositions relating to *agenda*—to things to do or be done, judgments of a situation as demanding action. There are, for example, propositions of the form: M.N. should do thus and so; it is better, wiser, more prudent, right, advisable, opportune, expedient, etc., to act thus and so. And this is the type of judgment I denote practical.

It may also be objected that this type of subject-matter is not distinctive; that there is no ground for marking it off from judgments of the form S is P , or mRn . I am willing, again, to admit that such may turn out to be the fact. But meanwhile there is a *prima-facie* difference which is worth considering, if only for the sake of reaching a conclusion as to whether or no there is involved a kind of subject-matter so distinctive as to imply a distinctive logical form. To assume in advance that the subject-matter of practical judgments *must* be reducible to the form of $S P$ and mathematical propositions is assuredly quite as gratuitous as the contrary assumption. Moreover, current discussion exhibits not, indeed, a complete void, but a decided lacuna as to propositions of the type mentioned above. Mr. Russell has recently said that of the two parts of logic the first enumerates or inventories the different kinds or forms of

propositions,¹ and it is noticeable that he does not even mention any of the above sort as a possible kind. Yet it is conceivable that omission of this type seriously compromises the success and efficacy of the exposition of other types.

Additional specimens of practical judgments may be given: He had better consult a physician; it would not be advisable for you to invest in those bonds; the United States should either modify its Monroe doctrine or else make more efficient military preparations; this is a good time to build a house; if I do that I shall be doing wrong; etc., etc. It seems silly to dwell upon the practical importance in our lives of judgments of this sort, but not wholly silly to say that their practical importance arouses curiosity and even suspicion as to their relative neglect in the discussion of the theory of logical forms. Regarding them, we may say:

1. Their subject-matter implies an incomplete situation. This incompleteness is not psychical. Something is "there," but what is there does not constitute the entire objective situation. As there, it requires something else. Only after this something else has been supplied will the given coincide with the full subject-matter. This consideration has an important bearing upon the conception of the indeterminate and contingent. It is sometimes assumed (both by adherents and opponents) that the validity of these notions entails that the *given* is itself indeterminate—which appears to be nonsense. The logical implication is that of a subject-matter as yet *unterminated*, unfinished or not wholly given. The implication is of future things.

2. Their subject-matter implies that the proposition is itself a factor in the completion of the situation, in carrying it forward to its conclusion. According as the judgment is that this or that should be done, the situation will, when completed, have this or that content. The proposition that it is well to do this is a proposition to treat the given in a certain way. Since the way of treating is established by the proposition, the proposition is *a* determining factor in the outcome. As a proposition about the supplementation of the given, it is a factor in the supplementation—and this not as an extraneous matter, something subsequent to the proposition, but as its own logical import or force. Here is found, *prima facie*, at least, a marked distinction of the practical proposition from descriptive and narrative propositions, from the familiar *S-P* propositions and from those of pure mathematics. The latter imply that the proposition does not enter into the constitution of the subject-matter of the proposition. There also is a distinction from another

¹ "Scientific Method in Philosophy," page 57.

kind of contingent proposition, namely, that having the form: "he has started for your house;" "the house is still burning;" "it will probably rain." The unfinishedness of the given is stated in these propositions, but it is not implied that the statement is a factor in determining their completion.

3. The subject-matter implies that it makes a difference how the given is terminated: that one outcome is better than another, and that the proposition is to be a factor in securing (as far as may be) the better. In other words, there is something objectively at stake in the forming of the proposition. A right or wrong descriptive judgment (or any judgment confined to the given, whether temporal, spatial, or subsistent) does not affect its subject-matter; hence it does not either help or hinder. But a practical proposition affects the subject-matter for better or worse, for it is a judgment as to the condition (the thing to be done) of the existence of the complete subject-matter.²

4. A practical proposition is binary. It is a judgment that the given is to be treated in a specified way; it is also a judgment that the given admits of such treatment, that is, admits of a specified objective termination. This is to say that it is a judgment, at the same stroke, of end—the result to be brought about—and of means—of the given situation and the proposed act as conditions of the outcome. Ethical theories which take the matter of ends—as so many of them do—out of connection from determination of means, also take discussion of ends out of the region of judgment. If there be such ends, they have no intellectual status.

To judge that I should see a physician implies that the given elements of the situation should be completed in a specific way and also that they afford the conditions which make the proposed completion practicable. The proposition is of both resources and obstacles—intellectual determination of elements lying in the way of, say, proper vigor, and of the elements which can be utilized to get around or surmount these obstacles. The judgment regarding the need of a physician implies the existence of hindrances in the pursuit of the normal occupations of life, but it equally implies the existence of positive factors which may be set in motion to surmount the hindrances and reinstate normal pursuit.

It is worth while to call attention to the reciprocal character of the practical judgment in its bearing upon the statement of means.

² The neo-realists have shown a peculiar disinclination to discuss the nature of future consequences as terms of propositions. They certainly are not identical with the mental act of referring to them; they are "objective" to it. Do they, therefore, already subsist in some realm of subsistence? Or is subsistence simply a name for the fact of acts of thought having a reference?

From the side of the end, the reciprocal nature locates and condemns utopianism and romanticism: what is sometimes called idealism. From the side of means, it locates and condemns materialism and predeterminism: what is sometimes called mechanism. By materialism I mean the conception that the statement of the given contains and exhausts the entire subject-matter of the practical judgment: that the facts in their givenness are all "there is to it" so far as intelligence is concerned. The given is undoubtedly just what it is; it is determinate throughout. But it is the given of something to be done. The survey and inventory of present conditions (of facts) are not something complete in themselves; they exist for the sake of an intelligent determination of what is to be done, of what is required to complete the given. To conceive the given in any such way, then, as to imply that it negates in its given character the possibility of any doing, of any modification, is self-contradictory. As a part of a practical judgment, the discovery that a man is suffering from an illness is not a discovery that he must suffer, or that the subsequent course of events is determined by his illness; it is the indication of a needed and of a possible mode of action by which to restore health. Even the discovery that the illness is hopeless falls within this principle. It is an indication not to waste time and money on certain fruitless endeavors, to prepare affairs with respect to its continuance or death, etc. It is also an indication of search for conditions which will render similar cases in the future remediable, not hopeless. The whole case for the genuineness of practical judgments stands or falls with this principle. It is of course open to question. But decision as to its validity must rest upon empirical evidence. It can not be ruled out of court by a dialectic development of the implications of the judgment of what is already given or what has already happened. That is, its invalidity can not be deduced from an assertion that the character of the scientific judgment as a discovery and statement of what is forbids it. For this assertion is only to beg the question at issue. Unless the facts are complicated by the surreptitious introduction of some preconception the *prima-facie* empirical case is that the scientific judgment—the determinate diagnosis—favors instead of forbidding the possibility of change of the given. To overthrow this presumption means, I repeat, to discover specific evidence which makes it impossible. And in view of the immense body of empirical evidence showing that we add to control of what is given (which is the subject-matter of scientific judgment) by means of scientific judgment, the likelihood of any such discovery seems extremely slight.

These considerations throw light upon the proper meaning of

(practical) idealism and of mechanism. Idealism in action does not seem to be anything except an explicit recognition of just the implications we have been considering. It signifies a recognition that what is given is given *as* obstacles to one course of active development or completion and as resources for another course by which the movement directly blocked may be indirectly secured. It is not a blind instinct of helpfulness or that miscellaneous obscurantist emotionalism often called optimism, any more than it is utopianism. It is the recognition of the increased liberation and intelligent control of the course of events which are achieved through accurate discovery. Or, more specifically, it is this recognition operating as a ruling motive in extending the work of discovery and the utilization of its results.

“Mechanism” as a method of knowledge is the reciprocal recognition on the side of means. That is, it is the recognition of the import within the practical judgment, of the given, of fact, in its determinate character. The facts in their isolation, taken as complete in themselves, are not mechanistic. At most, they just are, and that is the end of them. They are mechanistic as indicating the mechanism, the means, of accomplishing the possibilities which they indicate. Apart from a forward look (the anticipation of the future movement of affairs) mechanism is a meaningless conception. There would be no sense in applying the conception to a finished world, to any scene which is simply and only done with. Propositions regarding a past world, just as past (not as furnishing the conditions of what is to be done) might be complete and accurate, but they would be of the nature of a complex catalogue. To introduce, in addition, the conception of mechanism is to introduce the implication of possibilities of future accomplishment.³

5. The judgment of what is to be done implies, as we have just seen, a statement of what the given facts of the situation are, taken

³ I may refer in passing to the bearing of this upon a point in my recent paper (this JOURNAL, Vol. XII, page 337). Supposing the question to be that of some molten state of the earth in past geologic ages. Taken as the complete subject-matter of a proposition—or science—the facts discovered can not be regarded as causative of, or a mechanism of, the appearance of life. For by definition they form a closed system; to introduce reference to a future event is to deny the definition. Contrariwise, a statement of that past condition of the earth as a mechanism of the later emergence of life means that that past stage is taken not merely as past, but as in process of transition to its future, as in process of alteration in the direction of life. Change in this direction is quite as much an integral part of a complete statement of the early stage of the earth’s history as is its molten, non-living state at a given date. A purely geologic statement may be quite accurate in its own universe of discourse and yet quite incomplete and hence inaccurate in another universe of discourse.

both as indications of the course to pursue and as furnishing the means to be employed in its pursuit. This statement demands accuracy. Completeness is not so much an additional requirement as it is a condition of accuracy. But it is important to note that accuracy depends fundamentally upon relevancy to the determination of what is to be done. Completeness does not mean exhaustiveness *per se*, but adequacy as respects decision as to end and its means. To include too much, or what is irrelevant, is a violation of the demand for accuracy quite as well as to leave out—to fail to discover—what is important.

Clear recognition of this fact will enable one to avoid certain dialectic confusions. It has been argued that a judgment of given existence, or fact, can not be hypothetical; that factuality and hypothetical character are contradictions in terms. They would be if the two terms were used in the same respect. But they are not. The hypothesis is that the facts which constitute the statement of the given are relevant and adequate for the purpose in hand—the determination of a possibility to be accomplished in action. The data may be as factual, as absolute as you please, and yet they in no way guarantee that they are the data of this particular judgment. Suppose the thing to be done is the formation of a prediction regarding the return of a comet. The prime difficulty is not in making observations, or with the mathematical calculations based upon them—difficult as these things may be. It is in being sure that we have taken as data the observations really implicated in the doing rightly of this particular thing: that we have not left out something which is relevant or included something which has nothing to do with the further movement of the comet. Darwin's hypothesis of natural selection does not stand or fall with the correctness of propositions regarding breeding. The facts of artificial selection may be as stated—in themselves there may be nothing hypothetical about them. But their bearing upon the origin of species is a hypothesis. Logically speaking, the factual proposition is a hypothetical proposition in that connection.

6. The bearing of this remark upon the nature of the truth of practical judgments (including the judgment of what is given) is obvious. Their truth or falsity is constituted by the issue. The determination of end-means which constitutes the content of the practical proposition is hypothetical until the course of action indicated has been tried. The event or issue of such action is the truth or falsity of the judgment. This is an immediate conclusion from the fact that only the issue gives the complete subject-matter. In

this case, at least, verification and truth completely coincide—unless there is some serious error in the prior analysis.

This completes my account, preliminary to a consideration of value-judgments. But the account suggests another and independent question with respect to which I shall make an excursus. How far is it possible and legitimate to extend or generalize the results reached to apply to given facts? That is to say, is it possible and legitimate to treat all scientific or descriptive statements of matters of fact as implying, indirectly if not directly, something to be done, future possibilities to be realized in action? The question as to legitimacy is altogether too complicated to be discussed as an appendage. But it can not be denied that there is a possibility of such application, nor that the possibility is worthy of careful examination. We may at least frame a hypothesis that all judgments of fact have reference to a determination of courses of action to be tried and the discovery of means for their attempted realization. In the sense already explained all propositions which state discoveries or ascertainments, all categorical propositions, would then be hypothetical, and their truth would coincide with their tested consequences effected by intelligent action.

This theory may be called pragmatism. But it is a type of pragmatism quite free from dependence upon a voluntaristic psychology. It is not complicated by reference to emotional satisfactions or the play of desires.

I am not arguing the point. But possibly critics of pragmatism might get a new light upon its meaning were they to set out with an analysis of ordinary practical judgments, and then proceed to consider the bearing of the results upon judgments of facts and essences. Mr. Bertrand Russell has remarked⁴ that pragmatism originated as a theory about the truth of theories, but ignored the "truth of fact" upon which theories rest and by which they are tested. I am not concerned to question this statement so far as the context of the origin of pragmatism is concerned. Philosophy, at least, has been mainly a matter of theories; and Mr. James was conscientious enough to be troubled about the way in which the meaning of these theories is to be settled and the way in which they are to be tested. His pragmatism was in effect (as Mr. Russell recognizes) a statement of the need of applying to philosophic theories the same kinds of test used in the theories of the inductive sciences. But this does not preclude the application of a like method to dealing with so-called "truths of fact." Facts may be facts, and yet not be the facts of the inquiry in hand. In all scientific inquiry, however, to call them

⁴ "Philosophical Essays," pages 104 and 105.

facts or data or truths of fact signifies that they are taken as the *relevant* facts of the inference to be made. If then (as this would seem to indicate) they are implicated, however indirectly, in a proposition about what is to be done (if only as to some inference to be made) they themselves are theoretical in logical quality. Accuracy of statement and correctness of reasoning would then be factors in truth, but so also would be verification. Truth is a triadic relation, but one of a different sort from that conceived by Mr. Russell.

II. JUDGMENTS OF VALUE

I

It is my purpose to apply the conclusions previously drawn as to the implications of practical judgment to the subject of judgments of value. First, however, I shall try to clear away some sources of misunderstanding. I am not concerned with the *nature* of value as that has recently been the object of controversy. For my purposes it makes no difference whether value is comprised within consciousness, independent of consciousness, or a relation between an object and some form of consciousness. I am going to deal with valuation, not with value.

Unfortunately, however, there is a deep-seated ambiguity which makes it difficult to dismiss the matter of value so summarily. The *experience* of a good and the *judgment* that something is a value of a certain kind and amount, have been almost inextricably confused. The confusion has a long history. It is found in medieval thought; it is revived by Descartes; recent psychology has given it a new career. The senses were regarded as modes of knowledge of greater or less adequacy, and the feelings were regarded as modes of sense, and hence as modes of cognitive apprehension. Descartes was interested in showing, for scientific purposes, that the senses are not organs of apprehending the qualities of bodies as such, but only of apprehending their relation to the well-being of the sentient organism. Sensations of pleasure and pain, along with those of hunger, thirst, etc., most easily lent themselves to this treatment; colors, tones, etc., could then be assimilated. Of them all he says: "These perceptions of sense have been placed within me by nature for the purpose of *signifying* what things are beneficial or harmful."⁵ Thus he makes it possible to identify the real properties of bodies with their geometrical ones, without exposing himself to the inference that God (or nature) deceives us in the perception of color, sound, etc.

⁵ "Sixth Meditation."

These perceptions are only intended to teach us what things to pursue and avoid, and as *such* apprehensions they are quite adequate. His identification of any and every experience of good with a judgment or cognitive apprehension is clear in the following words: "When we are given news the mind first judges of it and if it is good it rejoices."⁶

This is a survival of the scholastic psychology of the *vis æstivativa*. Lotze's theory that the emotions, as involving pleasure and pain, are organs of value-judgments, or, in more recent terminology, that they are cognitive appreciations of worth (corresponding to immediate apprehensions of sensory qualities) presents the same tradition in a new terminology.

As against all this, the present paper takes its stand with the position stated by Hume in the following words: "A passion is an original existence, or, if you will, modification of existence; and contains not any representative quality, which renders it a copy of any other existence or modification. "When I am angry I am actually possest with the passion, and in that emotion have no more a reference to any other object, than when I am thirsty, or sick, or more than five feet high."⁷ In so doing, I may seem to some to be begging the question at issue. But such is surely the *prima-facie* fact of the matter. Only a prior dogma to the effect that every conscious experience *is, ipso facto*, a form of cognition leads to any obscuration of the fact, and the burden of proof is upon those who uphold the dogma.⁸

A farther word upon "appreciation" seems specially called for in view of the uncriticized currency of the doctrine that "appreciation" is a peculiar kind of knowledge, or cognitive revelation of reality: peculiar in having a distinct type of reality for its object and for its organ a peculiar mental condition differing from the intelligence of every-day knowledge and of science. Actually, there do not seem to be any grounds for regarding appreciation as anything but an intentionally enhanced or intensified experience of an object. Its

⁶ Principles of Philosophy," page 90.

⁷ "Treatise of Human Nature," Part III., Sec. iii.

⁸ It is perhaps poor tactics on my part to complicate this matter with anything else. But it is evident that the "passions" and pains and pleasures may be used as evidences of something beyond themselves (as may the fact of being more than five feet high) and so get a representative or cognitive status. Is there not also a *prima-facie* presumption that all sensory qualities are of themselves bare existences or occurrences without cognitive pretensions, and that they have the latter only as signs or evidence of something else? Epistemological idealists or realists who admit the non-cognitive character of pleasure and pain would seem to be under special obligations carefully to consider the thesis of the non-cognitive nature of all sensory qualities as such.

opposite is not descriptive or explanatory knowledge, but *depreciation*—a degraded realization of an object. A man may climb a mountain to get a better realization of a landscape; he may travel to Greece to get a realization of the Parthenon more full than that which he has had from pictures. Intelligence, knowledge, may be involved in the steps taken to get the enhanced experience, but that does not make the landscape or the Parthenon as fully savored a cognitive object. So the fullness of a musical experience may depend upon prior critical analysis, but that does not necessarily make the hearing of music a kind of non-analytic cognitive act. Either appreciation means just an intensified experience, or it means a kind of criticism, and then it falls within the sphere of ordinary judgment, differing in being applied to a work of art instead of to some other subject-matter. The same mode of analysis may be applied to the older but cognate term "intuition." The terms acquaintance and familiarity and recognition (acknowledgment) are full of like pitfalls of ambiguity.

By a value judgment, then, I mean simply a judgment having goods and bads for its subject-matter. Such being the case, it may well be asked: Why give it any special consideration? Why should logic, in addition to a theory of judgment, bother with value-judgments as a special class any more than with dog-judgments or granite-judgments? And my answer is there is no reason, save that value-judgments are a species of practical judgments (which present specific problems for consideration); and that the failure to observe this fact has resulted—so it seems to me—in much confusion, especially in moral theories about the judgment of good, right, and standards. And, I have no doubt, the same confusion has affected for evil the economic theory of valuation of commodities and services.

A practical judgment has been defined as a judgment of what to do, or what is to be done: a judgment respecting the future termination of an incomplete and in so far indeterminate situation. To say that judgments of value fall within this field is to say two things: One, that the judgment of value is never complete in itself, but always in behalf of determining what is to be done; the other, that judgments of value (as distinct from the direct experience of something as good) imply that value is not anything as yet given, but is something to-be-given by future action, itself conditioned upon (varying with) the judgment. Practical judgments do not primarily concern themselves with the question of the value of *objects*. They deal primarily with fixing upon the course of action demanded to carry an incomplete situation to its fulfilment. The adequate control of such judgments may, however, be facilitated by judgment of the worth of objects which enter as ends and means into the action con-

templated. For example, my primary (and ultimate) judgment has to do, say, with buying a suit of clothes, whether to buy and, if so, what? The question is of better and worse with respect to alternative courses of action, not with respect to various objects. But the judgment will be a judgment (and not a chance reaction) in the degree in which it takes for its intervening subject-matter the value-status of various objects. What are the prices of given suits? What are their styles as respect to current fashion? How do their patterns compare? What about their durability? How about their respective adaptability to the chief wearing use I have in mind? Relative, or comparative, durability, cheapness, suitability, style, esthetic attractiveness constitute value traits. They are traits of objects not *per se*, but *as entering into a possible and foreseen completing of the situation*. Their value is their force in precisely this function. The decision of better and worse is the determination of their respective capacities and intensities *in this regard*. Apart from their status in this office, they have no traits of value in judgment. A determination of better value as found in some one suit is equivalent to (has the force of) a decision as to what it is better to do. It provides the lacking stimulus so that action occurs, or passes from its indeterminate-indecisive-state into decision.

Reference to the terms "subjective" and "objective" will, perhaps, raise a cloud of ambiguities. But for this very reason it may be worth while to point out the ambiguous nature of the term objective as applied to valuations. Objective may be identified, quite erroneously, with qualities existing outside of and independently of the situation in which a decision as to a future course of action has to be reached. Or, objective may denote the status of qualities of an object *in respect* to the situation to be completed through judgment. Independently of the situation requiring practical judgment, clothes already have a given price, durability, pattern, etc. These traits are not affected by the judgment. They exist; they are given. But as given they are not determinate values. They are not *objects of valuation*, but *data for valuation*. We may have to take pains to discover that these given qualities are, but their discovery is in order that there may be a judgment of value. Were they already definite values, the traits would not be estimated; they would be stimuli to direct response. If a man had already decided that cheapness constituted value, he would simply take the cheapest suit offered. What he judges is the value of cheapness, and this depends upon its weight or importance in the situation requiring action as compared with durability, style, adaptability, etc. Discovery of shoddy would not affect the *de facto* durability of the goods, but it would affect the value of cheapness—that is, the weight assigned

that trait in influencing judgment—which it would not do, if cheapness already had a definite value. A value, in short, means a *consideration*, and a consideration does not mean merely an existence, but an existence having a certain claim upon the judgment to be formed. Value judged is not existential quality noted, but is the influence attached by judgment to a given existential quality in determining judgment.

The conclusion is not that value is subjective, but that it is practical. The situation in which judgment of value is required is not mental, much less fanciful. It is existential, but it exists *as* something whose good or value resides (first) in something to be attained in action and (secondly) whose value both as an idea and as existence depends upon judgment of what to do. Value is "objective," but it is such in an active or practical situation, not apart from it. To deny the possibility of such a view, is to reduce the objectivity of every tool and machine to the physical ingredients that compose it, and to treat a distinctive "plow" character as merely subjective. *Value-in-judgment* always has to do with something *as* tool or means, and instrumentality is an added (and selective) specification.

At the risk of whatever shock, this doctrine should be exposed in all its nakedness. To judge value is to engage in instituting a determinate value where none is given. It is not necessary that antecedently given values should be the data of the valuation; and where they are given data they are only terms in the determination of a not yet existing value. When a man is ill and after deliberation concludes that it be well to see a doctor, the doctor doubtless exists antecedently. But it is not the doctor who is judged to be the good of the situation, but the *seeing* of the doctor: a thing which, by description, exists only because of an act dependent upon a judgment. Nor is the health the man antecedently possessed (or which somebody has) the thing which he judges to be a value; the thing judged to be a value is the restoring of health—something by description not yet existing. The results flowing from his past health will doubtless influence him in reaching his judgment that it will be a good to have restored health, but they do not constitute the good which forms his subject-matter and object of his judgment. He may judge that they *were* good without judging that they are now good, for to be judged now good means to be judged to be the object of a course of action still to be undertaken. And to *judge* that they were good (as distinct from merely recalling certain benefits which accrued from health) is to judge that *if* the situation had required a reflective determination of a course of action one would have judged health an existence to be attained or preserved by action. These are undoubted dialectic difficulties which may be raised about judgments of this

sort. For they imply the seeming paradox of a judgment whose proper subject-matter is its own determinate formation. But nothing is gained by obscuring the fact that such is the nature of the practical judgment of what is to be done: it is a judgment of what and how to judge—of the weight to be assigned to various factors in the determination of judgment. It is precisely this character which constitutes the necessity of the reference of the subject-matter of judgment beyond judgment: which makes it impossible for a practical judgment as judgment to have a self-contained meaning and truth. It would be interesting to inquire into the question whether this peculiarity may not throw light upon the nature of “consciousness,” but into that field we can not go.

II

From what has been said, it immediately follows, of course, that a determinate value is instituted as a determination of what is to be done. Wherever a determinate good exists, there is an adequate stimulus to action and no judgment of what is to be done or of the value of an object is called for. It is frequently assumed, however, that valuation is a process of applying some fixed or determinate value to the various competing goods of a situation; that valuation implies a standard of value and consists in equating various goods with the standard as a supreme unquestioned value. This assumption requires examination. If it is sound, it deprives the position which has been taken of any validity. For it renders the practical judgment a matter of applying a value existing ready-made outside the valuation, instead of making—as we have done—the valuation a determination within the practical judgment. The argument would run this way: Every practical judgment depends upon a judgment of the value of the end to be attained; this end may be such only proximately, but that implies something else judged to be good, and so, logically, till we have arrived at the judgment of a supreme good, a final end or *summum bonum*. If this statement correctly describes the state of the case, there can be no doubt that a practical judgment depends upon a prior judgment of value; consequently, the hypothesis upon which we have been proceeding reverses the actual facts.

The first thing by way of critical comment is to point out the ambiguity in the term end. I should like to fall back upon what was said earlier about the thoroughly reciprocal character of means and end in the practical judgment. If this be admitted, it is also admitted that only by the judgment of means—of things having value in the carrying of an indeterminate situation to a completion—is the

end determinately made out in judgment. But I fear I can not count upon this as granted. So I will point out that end may mean either the *de facto* limit to judgment, which by definition does not enter into judgment at all, or it may mean the last and completing object of judgment, the conception of that object in which a transitive incompletely given situation would come to rest. Of end in the first sense, it is to be said that it is not a value at all; of end in the second sense that it is identical with the finale of the kind of judgment we have just been discussing, so that as value it is determined in judgment, not a value employed to control the judgment. It may be asserted that in the illustration used some typical suit of clothes is the value which affords the standard of valuation of all the suits which are offered to the buyer; that he passes judgment on their value as compared with the standard suit as an end and supreme value. This statement brings out the ambiguity just referred to. The need of something to wear is the *stimulus* to the judgment of the value of suits offered, and possession of a suit puts an end to judgment. It is an end of judgment in the objective, not in the possessive sense, of the preposition "of"; it is not an end in the sense of aim, but in the sense of a terminating limit. When possession begins judgment has already ceased. And if argument *ad verucundiam* has any weight I may point out that this is the doctrine of Aristotle when he says we never deliberate about ends, but only about means. That is to say, in all deliberation (or practical judgment or inquiry) there is always something outside of judgment which fixes its beginning and end or terminus. And I would add that according to Aristotle, deliberation always ceases when we have come to the "first link in the chain of causes, which is last in the order of discovery," and this means "when we have traced back the chain of causes [means] to ourselves." In other words, the last end-in-view is always that which operates as the direct or immediate means of setting our own powers in operation. The end-in-view upon which judgment of action settles down is simply the adequate or complete means to the doing of something.

We do deliberate, however, about aims, about ends-in-view—a fact which shows their radically different nature from ends as limits to deliberation. The aim in the present instance is not the suit of clothes, but the *getting of a proper* suit. That is what is precisely estimated or valued; and I think I may claim to have shown that the determination of this aim is identical with the determination of the value of a given suit through comparison of the values of cheapness, durability, style, pattern of different suits offered. Value is not determined by means of comparing the various suits with an ideal model, but by weighing the claims to the

cheapness, durability, adaptability of various suits against one another—involving, of course, reference also to length of purse, suits already possessed, etc., and other specific elements in the situation which demands that something be done. The purchaser may, of course, have settled upon something which serves as a model before he goes to buy; but that only means that his judging has been done beforehand; the model does not then function in judgment, but simply in his act. And there is a consideration here involved of the utmost importance as to practical judgments of the moral type: The more completely the notion of the model is formed outside and irrespective of the specific conditions which the situation of action presents, the less intelligent is the act. Most men might have their ideals of the model changed somewhat in the face of the actual offering, even in the case of buying clothes. The man who is not accessible to such change in the case of moral situations has ceased to be a moral agent and become a reacting machine. In short, the standard of valuation is formed in the process of practical judgment or valuation. It is not something taken from outside and applied within it,—such application means there is no judgment.

It may, however, be contended that this does not justify the statement made to the effect that the limiting situation which occasions and cuts off judgment is not itself a value. Why, it will be asked, does a man buy a suit of clothes unless that is a value, or at least a proximate means to a further value? The answer is short and simple: Because he has to; because the situation in which he lives demands it. The answer probably seems too summary. But it may suggest that while a man lives, he never is called upon to judge whether he shall act, but simply *how* he shall act. A decision not to act is a decision to act in a certain way; it is never a judgment not to act, unqualifiedly. It is a judgment to do something else—to wait, for example. A judgment that the best thing to do is to retire from active life, to become a Simon Stylites, is a judgment to act in a certain way, conditioned upon the necessity that irrespective of judging a man will have to act somehow anyway. A decision to commit suicide is not a decision to be dead; it is a decision to perform a certain act. The act may depend upon reaching the conclusion that life is not worth living. But as a judgment, this is a conclusion to act in a way to terminate the possibility of further situations requiring judgment and action. And it does not imply that a judgment about the worth of life as a supreme value and standard underlies all judgments as to how to live. More specifically, it is not a judgment upon the value of life *per se*, but a judgment that one does not find at hand the means of making life worth while. As an act to be done, it still falls within and assumes life. As a judgment

upon the value of life as such, it by definition evades the issue. No one ever influenced a person considering committing suicide by arguments concerning the value of life, but only by supplying conditions and means which made life worth living, in other words, by furnishing direct stimuli to living.

However, I fear that all this argument may only obscure a point obvious without argument, namely, that all deliberation upon what to do is concerned with the completion or determination of a situation in some respect incomplete and so indeterminate. But nevertheless every such situation is specific; it is not *merely* incomplete; on the contrary, the incompleteness is always *of* a specific situation. Hence this situation sets limits to the reflective process; what is judged has reference to it and that which limits never is judged in the particular situation in which it is limiting. Now we have in ordinary speech a word which expresses the nature of the conditions which limit the judgments of value. It is the word "invaluable." The word does not mean something of supreme value as compared with other things any more than it means something of zero value. It means something out of the scope of valuation—something out of the range of judgment; whatever is not and can not be in the situation at hand any part of the subject-matter of judgment and yet instigates and cuts short the judgment. Unfortunately for discussions, "to value" means two radically different things: to prize and appraise; to esteem and to estimate. I call them radically different because to prize names a practical, non-intellectual attitude, and to appraise names a judgment. That men love and hold things dear, that they cherish and care for some things, and neglect and contemn other things, is an undoubted fact. To call these things values is just to repeat that they are loved and cherished; it is not to give a reason for their being loved and cherished. To call them values and then import into them the traits of objects of valuation, or to import into values, meaning valuated objects, the traits which things possess as held dear is to confuse the theory of judgments of value past all remedy.

III

The statement that values are determined in the process of judgment of what to do (that is in situations where preference depends upon reflection upon the conditions and possibilities of a situation requiring action), will be met by the objection that our practical deliberations usually assume precedent specific values and also a certain order or grade among them. There is a sense in which I am not concerned to deny this. Our deliberate choices go on in situations more or less like those in which we have chosen previously.

When deliberation has reached a value, and action has confirmed or verified the conclusion, the result remains. In *that* situation one thing is better than another. Moreover, situations overlap. The *m* which is judged better than *n* in one situation is found worse than *l* in another, and so on; thus a certain order of precedence is established. And we have to broaden the field to cover the habitual order of reflective preferences in the community to which we belong. The values thus constituted present themselves as facts in subsequent situations. Moreover, the dominating objects of past valuations present themselves as standard values, by the same kind of operation.

But we have to note that such value standards are only presumptive. Their status depends, on one hand, upon the extent in which the present situation is like the past. In the progressive or a rapidly altering social life, the presumption of present value is weakened. And while it would be foolish not to avail oneself of the assistance in present valuations of the values established in other situations, we have to remember that habit operates to make us overlook differences and presume identity where it does not exist—to the misleading of judgment. On the other hand, the contributory worth of past determinations of value is dependent upon the extent in which they were made critically, and especially upon the extent in which the consequences brought about through acting upon them have been carefully noted. In other words, the presumptive force of a past value in present judgment depends upon the verification the prior estimate of it has received.

In any case, so far as judgment takes place at all (instead of the thought of a prior good operating as a direct stimulus to action) all valuation is in some degree a revaluation. Nietzsche would probably not have made so much of a sensation, but he would have been within the limits of wisdom, if he confined himself to the assertion that all judgment, in the degree in which it is critically intelligent, is a transvaluation of prior values. I can not escape recognition that any allusion to modification or transformation of an object through judgment will arouse partisan suspicion and hostility. To many it will appear to be a survival of an idealistic epistemology. But I am talking about practical judgments—judgments where the object of judgment is something to be done. I see but three alternatives. Either there are no such judgments—as judgments they are wholly illusory; or the future is bound to be but a repetition of the past, a reproduction of something eternally existent in some transcendent realm, which is the same thing logically;⁹ or the object of a practical judgment is some change,

⁹ Upholders of this view generally disguise the assumption of repetition by the notion that what is judged is progress in the direction of approximation

some alteration, to be brought about in the given, the nature of which change depends upon the judgment itself and yet constitutes the subject-matter of judgment. Unless the epistemological realist accepts one of the two first alternatives, he seems bound, in accepting the third, to admit that not merely do practical judgments as after effect make a difference in things (this he seems ready enough to accept about many propositions), but that the import and the validity of the judgments is a matter of the difference thus made. One may, of course, hold that this is just what marks the distinction of the practical judgment from the scientific judgment. But one who admits this fact as respects a practical judgment can no longer hold that it is fatal to the very idea of judgment to suppose that its proper object is some difference to be brought about in things and that the truth of the judgment is constituted by the differences actually made in consequences which issue.

But (to obviate misunderstanding) this does not mean that some psychic state or act makes the difference. The point is purely logical, and is twofold. In the first place, the subject-matter of the judgment is a change to be brought about; and in the second place this subject-matter does not become an *object* until the judgment has issued in act. It is the act which makes the difference, but nevertheless the act is but the complete object of judgment and the judgment is complete as a judgment only in the act. The anti-pragmatists have been asked (notably by Professor A. W. Moore) how they sharply distinguish between judgment—or knowledge—and act and yet freely admit and insist that knowledge makes a difference in action and hence in existence. This is the crux of the whole matter. And it is a logical question. It is not a query (as it seems to have been considered) as to how the mental can influence a physical thing like action—a variant of the old question of how the mind affects the body. On the contrary, the implication is that the relation of knowledge to action becomes a problem of the action of a mental (or logical) entity upon a physical one only when the logical import of judgment has been misconceived. The positive contention is that the realm of logical propositions presents in a realm of *possibility* the specific rearrangement of things which overt action presents in actuality. Hence the passage of a proposition into action is not a to an eternal value. But as matter of fact, progress is never judged (as I have had repeated occasion to point out) by reference to a transcendent eternal value, but in reference to the success of the end-in-view in meeting the needs and conditions of the specific situation—a surrender of the doctrine in favor of the one set forth in the text. Logically, the notion of progress as approximation has no place. The thesis should read that we always try to repeat a given value, but always fail as a matter of fact. And constant failure is a queer name for progress.

miracle, but the realization of its own character—its own meaning as logical. I do not profess, of course, to have shown that such is the case for *all* propositions; that is a matter which I have not discussed. But in showing the tenability of the hypothesis that practical judgments are of that nature, I have at least ruled out any purely dialectic proof that the *nature* of knowledge as such forbids entertaining the hypothesis that the import—indirect if not direct—of all logical propositions is some difference to be brought about. The road is at least cleared for a more unprejudiced consideration of this hypothesis on its own merits.

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A TOO BRIEF SET OF POSTULATES FOR THE ALGEBRA OF LOGIC

THE algebra of logic as usually developed makes use of an implication relation whose meaning differs somewhat from the usual one. It is commonly referred to as "material implication." Some have supposed that this difference of "*p* implies *q*" in symbolic logic from "*q* can be inferred from *p*" in Aristotelian logic represents a distinct advance in logical analysis, and that the mere fact of an unusual meaning of "implies" does not necessarily vitiate proof.

For the consideration of any such persons, we here offer a most economical set of primitive propositions, from which all the theorems of symbolic logic, all the theorems of cardinal and ordinal arithmetic, of statics and dynamics, and of various branches of exact science can immediately be derived.

Let *p*, or *q*, or *r*, etc., represent any *true* proposition.

Let $\sim p$ represent the negation of *p*, "*p* is false."

(Please note that, although *p*, *q*, *r*, etc., represent *true* propositions, false propositions can equally well be symbolized. If *p* is some true proposition, $\sim p$ will be some false proposition.)

Let $(p + q)$ represent: "One (but not both) of the two propositions, *p* and *q*, is true." Remembering the restriction, we can read $(p + q)$ "Either *p* is true or *q* is true."

The fact that *p* implies *q* is to be symbolized by $(p \supset q)$. "The idea of implication in the form in which we require it can be defined. The meaning to be given to implication in what follows may at first sight appear somewhat artificial; but although there are other legitimate meanings, the one here adopted is very much more convenient for our purposes than any of its rivals. The essential property that we require of implication is this: 'What is implied by a true proposi-

tion is true.' It is in virtue of this property that implication yields proofs. But this property by no means determines whether anything, and if so what, is implied by a false proposition."¹

Our definition is as follows:

$$(p \supset q) = (p + \sim q) \quad \text{Df.}$$

"*p* implies *q*" is defined to mean that $(p + \sim q)$. This last expression, according to our use of the symbols $+$ and \sim explained above, represents "One (but not both) of the two propositions, *p* and '*q* is false,' is true." Here *p* and '*q* is false' can not both be true; hence if *p* is true, *q* must also be true. Thus implication, so defined, has the requisite property that 'what is implied by a true proposition is true.'

We make one further assumption:

$$p \supset (p + \sim q).$$

This postulate is obviously true. If *p* is true, then one of the two, *p* and "*q* is false," is certainly true. But "*q* is false" is a false proposition, since *q* is restricted to represent only *true* propositions. Therefore, if *p* is true, one (but not both) of the two, *p* and $\sim q$, is true. That is exactly what the postulate states.

No further assumptions are necessary, except the principle stated above, that "what is implied by a true proposition is true."

THEOREM 1. $p \supset (p \supset q)$.

Proof: Substitute for $(p + \sim q)$, in the postulate $p \supset (p + \sim q)$, its defined equivalent $(p \supset q)$. Q. E. D.

Theorem 1 may be read: "Any true proposition, *p*, implies that *p* implies any true proposition, *q*;" or more briefly, "Any true proposition implies all true propositions." (This symbolic verification of the coherence theory of truth may be noted in passing.)

Theorem 1 is the immediate basis for all further work. Choose any true proposition (preferably stated in symbols)—for example, the principle of permutation, $(p + q) \supset (q + p)$.

THEOREM 2. $(p + q) \supset (q + p)$.

Proof: In theorem 1, substitute the postulate, $p \supset (p + \sim q)$, for *p*, and the theorem to be proved for *q*. These substitutions give:

$$[p \supset (p + \sim q)] \supset \{ [p \supset (p + \sim q)] \supset [(p + q) \supset (q + p)] \}.$$

Since $p \supset (p + \sim q)$ is true, what it implies is true, and we can assert:

$$[p \supset (p + \sim q)] \supset [(p + q) \supset (q + p)].$$

Here again, what precedes the main implication sign is true, and we can assert what it implies—which is the theorem to be proved.

¹ Whitehead and Russell, "Principia Mathematica," page 98. This passage is quoted from the authors' discussion of *their* definition of implication.

Any other theorem in logic or in mathematics generally can be proved directly from theorem 1 by exactly the same method: substitute the theorem to be proved for q , and the postulate $p \supset (p + \sim q)$ (or any proved theorem) for p .

We submit that this method gives the most economical development of mathematics from a few postulates ever invented. All the true theorems of mathematics can be deduced immediately from one postulate, with the help of a single definition. And *no false theorem* can possibly be proved by this method, because no false proposition can be substituted for q in theorem 1.

It may be objected that the restriction of p , q , r , etc., to true propositions is unusual and objectionable. But by using the sign of negation, any false proposition can also be symbolized. Further, the principal use of mathematical logic is not to discover new theorems of mathematics, but to exhibit the derivation of all mathematics from a few postulates and primitive ideas. The system above outlined is extremely expeditious and convenient for this purpose.

We can assure the reader that in this case the rabbit actually does come out of the hat. Nothing but what we have carefully explained above need be assumed in order to derive all mathematics from one postulate. It is hoped that those who favor new and "somewhat artificial" definitions of implication will ponder this matter with care. The protagonists of "material implication" are especially urged to state their objections to our procedure.

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REVIEWS AND ABSTRACTS OF LITERATURE

La Notion d'Expérience d'après William James. HENRI REVERDIN. Genève et Bale: Georg et Cie. 1913. Pp. xxii + 221.

A Frenchman's analysis generally attains the qualities of clearness and conciseness and sometimes of over-simplification; a fact which, coupled with the very wide influence of William James upon French thought, makes an examination of the great Pragmatist's philosophy by a penetrating writer who enjoyed his personal acquaintance and collaboration doubly interesting and instructive. The enthusiasm of M. Boutroux and the somewhat mystical reverence of M. Flournoy might in point of objectivity occasionally appear to be limitations of the above general dictum. This is not, however, true of M. Reverdin, who, with all his admiration for the "virgin forest" of James, does not hesitate to take measurements of it, even to "pierce well-graveled roads and to trim in the form of a French garden" to quote M. Flournoy's *bête noire*.

In the present writer's judgment it is exactly this penetration of the

"forest of unorganized experience" which constitutes one of the tasks of philosophy, many as may be the delights of poetic contemplation in virgin nature by humans unsophisticated to thinking definite ideas in consistent coordination. Which latter in some modern philosophy seems to alternate with technical wisdom unsharable with other minds. But whether the James philosophy be "virgin forest" or an esthetically and practically cultivated field, M. Reverdin's examination of the idea of experience is fruitful, not only as showing the development of James's thought, but also its limitations when measured by conceptual consistency. The danger of over-simplification is obvious in such an effort and one into which the author has, perhaps, occasionally fallen.

M. Reverdin has clearly enough demonstrated the impossibility of arranging that philosophy into any sort of systematic consistency. In tracing the doctrine of experience it was natural to attempt an exposition of some of the leading propositions and important concepts as related to the question of how known. And curious as the fact may seem to the student of human thought, a refutation of most of the teaching commonly accepted as characteristic of the great Pluralist's thought can be quoted from his own works. A few examples must suffice in this place. James's attitude towards logic is positive in his Psychology. "This might be a world in which all objects were in a flux. . . . But our world is no such world. . . . It plays right into logic's hands."¹ In his "Philosophy of Experience,"² as generally in his later work, the world has become a Heraclitean flux "between which and logic there is no common denominator." In his Psychology, again, concepts as such are Platonic unchangeables; in his later work they have become Gorgian Quodlibets. From the beginning of his active life as a thinker, according to M. Reverdin, James laid claim to empiricism. But it is very difficult, if not impossible, to read the chapter on "Necessary Truths" in the Psychology as empiricism: a house-born origin unrelated to sensation for many "elementary mental categories" including "ideas of causal dependence among events," "ideas of worth," "ideas of difference and resemblance," "judgments that the former judgments logically involve, exclude, or are indifferent to, each other." If "reality had naught to do" with these thoughts and with the brain processes parallel to them, in what sense can we call such an interpretation empirical? An even greater extension of the same doctrine seems asserted in: "Things of an inexperienceable nature may exist *ad libitum*,"³ but by what empirical means once more do we attain such "truth"? Obviously the same question would serve to show the ambiguous status of the doctrine concerning the fringe and intuition—if by empirical we mean "given by experience," and by experience we mean "processes which influence the mind by the front-door-way of simple habits and association."⁴ These "necessary truths" which James finds in the "pure" or "*a priori*" sciences are not only "unrelated to external

¹ II., page 632.

² Pp. 203-4.

³ "The Meaning of Truth," page 134.

⁴ "Psychology," II., 62.

reality," they are a violation of the outer order by the inner, a "spontaneous variation" in some one's brain.⁵

Now in his later years James undoubtedly conceived of experience as equivalent to whatever is experienced, or "occurs" in conscious, subconscious, or even certain "inferred" states as in mystical religious experience. It would appear, therefore, as though the house-born products had themselves become a portion of experience and the "radical empiricism" transformed into a highly idealistic method. The critics of Pragmatism, notably Pratt,⁶ have pointed out its close affinity to subjective idealism and the consequent danger of solipsism. James, nevertheless, to the very close of his life held firmly to what he called radical empiricism. He went so far as to write: "It seems to me that the establishment of the pragmatic theory of truth is a step of prime importance toward making a radical empiricism prevail."⁷ To be sure in the "Pragmatism" itself⁸ he denies the existence of any logical relationship between pragmatism and radical empiricism, but even this forces one to the implication of some other than logical process—evaluations, biological pleasantness or usefulness—by which the pragmatist should attain his radical empiricism! All of which is sufficiently baffling to M. Reverdin as a sort of subjective pluralism.

As a matter of fact James used the word experience in sundry different meanings. As a pragmatist he was, perhaps, entitled to do so, but even so early as the *Psychology*⁹ we find the proposition: "My experience is what I agree to attend to" sharply at variance with the doctrine of experience as "processes which influence the mind by the front-door-way of simple habits and association"¹⁰ when one bears in mind that James distinguished sharply between voluntary attention and simple association. In the "Briefer Course"¹¹ we read "in an infant's pure sensation all the 'categories of the understanding' are contained. It has externality, objectivity, unity, substantiality, causality in the full sense in which any later object or system of objects has these things," and "pure experience" is but another name for sensation; yet when the house-born material is passed in review¹² the ideas of causation, difference, worth, substantiality, subject and attribute, as well as many others are declared to be extra-experiential. It might appear as though throughout we had an idealist vainly trying to make himself out a radical empiricist by obliterating the basis of distinction between them.

That he never succeeded is, however, made clear by examination of a few major doctrines. M. Reverdin finds the concept of possibility a central one in James's thought.¹³ The impression which the reading of

⁵ *Ibid.*, II, page 626.

⁶ "What is Pragmatism?"

⁷ "The Meaning of Truth," page xii.

⁸ Page 18.

⁹ I., page 402.

¹⁰ II., page 628.

¹¹ Pages 15, 16.

¹² "Psychology," page 628.

¹³ Page 23.

James makes upon his mind is like that of the poetry of Genesis: "The spirit of God moved upon the waters!" Possibility moved over the void, over being, over all concrete things. What might have been is limitless. Indeed all that exists might not have been or have been of a totally different nature. Such a contingency is everywhere latent in pluralism, in indeterminism, and is especially marked in the campaign against monism and intellectualism. But how is the knowledge James professes to have concerning the infinite possibilities of things obtained? Whence the concept of non-being empirically? Clearly the doctrine of non-being is a pseudo-thought, as by definition out of all relation to a knowing consciousness. To be sure in an article on "Pure Experience" James postulates a superiority to distinction of subject and object, things known and the knower—an experience which by "summation" attains the categories of objectivity, substance, and so forth. But, asks M. Reverdin, by what summation of nothings should one ever attain to any category whatsoever? So far as contingency is concerned, it reduces itself to a contingency of thought, and ultimately what James meant by possibility was conceivability—the Impossible was simply the Inconceivable. Infinitely to alter the actual or to see it as non-existent is equivalent to getting above the very "stream of consciousness" itself.

Again in any heretofore proposed empiricism a combination of contingency and pluralism would mean a solely *retrospective science*. Any fact being a matter of chance so far as our intellects are concerned and the conditions of its appearance uncertain and not to be foreseen, any prospective or predicting science is hopelessly confounded in fortuitous possibilities. Such a supposed enrichment of the world by infinite latent resources and aspects unguessed is, in reality, the embarrassment of chaos. But again James did certainly not conceive of science as history merely. The familiar correspondence theory of truth which affirms a definite relationship between objective things and a genuine experience of them was one which James was loath to part with. From the *Psychology*¹⁴—"The time- and space-relations between things do stamp copies of themselves within"—to the "Pragmatism" we have in sense perception a knowledge somehow genuinely representative of things. The moment it be granted, however, that all mental occurrences are contingent, in the sense that all conditions remaining as they were, the former might not happen again, we have broken up the definite, vital relationship between the knower and the known. Moreover, by what perceptual process does such knowledge of contingency arise? Is it, too, a chance process? Pragmatism by its emphasis upon teleological devices, biological goods, inventions to avoid pain, esthetic balances between the categories of unity and clarity, is no longer concerned with representative relationships between percepts or their derivation concepts and the external world, but rather with highly individual subjective states. So that, far from being empirical, it becomes skeptically idealistic, and that by a process of intuition to which a large portion of James's teaching concerning Monism, Causality, Concept,

¹⁴ II., 632.

Contingency, Meliorism, and so forth must be ascribed. Its skepticism consists in finding nothing inwardly or outwardly, perceptually or conceptually, "necessary" or true as the word is commonly understood. To bring the subjective factors involved in Pragmatism into some sort of team-work with a "representative" theory of knowledge is indeed difficult; but whichever hypothesis one constructs for the purpose seems clearly no matter of radical empiricism. The *nisi intellectus ipse* meets one at every turn, even though it be by way of thinking its own infinite Pluralism.

The last sense in which James used the word experience as equivalent to whatever occurs in the "stream of consciousness," the sum total of motions, sensations, and what not of which I am aware, M. Reverdin finds too broad as including "*de tous les termes imaginables, les possibles et les imaginaires conçus étant des vagues subjective de ce courant*" (p. 206). We should distinguish clearly between the subjective and objective. . . . Yet it is precisely here in the opinion of the present reviewer that the crux of the whole matter lies because of the by no means simple process of discriminating between subjective and objective. James's whole effort to interpret experience seems clearly to evidence the fact, so insistently repeated in his work, that subjective and objective are inextricably intermingled and that if we ever attained pure experience it would have, as such, neither subjective nor objective reference. Such pure experience seems to our minds as at present, constituted a singularly mystically intuitive procedure both as "happening" to the mind of James and as a projected ideal. But both extremes of empiricism and idealism seem to foreshadow a theory of knowledge in which the old and seemingly untenable distinctions should be done away with by doing justice to the claims of both. Thus the *ne plus ultra* beckons on the road of James's last-mentioned all-inclusive Experience which would seem to be the only basis upon which dogmatism could be avoided.

M. Reverdin submits finally his own definition of experience, which is interesting as involving a normative factor: "Experience is that concerning which individuals similarly and normally constituted have agreed, at present agree, will agree and should agree; we must suppose these individuals to be free,—free, that is, from every prejudice and every passion excepting only that of obtaining contact with reality in complete sincerity" (p. 213). The obvious criticism of this from James's later point of view would be that it seems to compound truth with experience.

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A First Book in Psychology. MARY WHITON CALKINS. Fourth Revised Edition. New York: The Macmillan Company. 1914. Pp. 428.

Few text-books experience the frequency of re-edition which has been the lot of this book. This is the fourth revision during the five years since its first appearance. The main doctrines of Miss Calkins's psychology remain unchanged. The modifications in the make-up of the new edition are few, and consist mainly in the rewording of various paragraphs, such as those dealing with conception, attention, emotion, belief,

consciousness of realness. "Affective element" is now used in place of the "attributive element" of the earlier editions. The "consciousness of realness" is classed with the relational elements instead of with the affective. The three "structural elements" are emphasized as being indications of the various forms of relation between the self and its objects, the term "element" losing most of its atomistic suggestiveness. "Consciousness" is used as a synonym for "personal attitude."

In pointing out certain differences among the structural elements the author remarks that the sensational are "readily externalized," the affective "more naturally referred to the self," while the relational elements "occupy a sort of midway position" (p. 330). The purely statistical reasons for these characterizations, and especially the significance of the continuity afforded by the intermediate position of the relational experiences, merit further discussion. Such amplification should go a long way toward relieving us of the artificial line so commonly drawn between "subjective" and "objective" content.

The appendix is enlarged by the addition of a second supplement to the bibliographies, and by a modification of some of the review questions. This latter change is apparently responsible for an error in the make-up of the page whereby the first line of Question 14, page 403, has been omitted, making the whole question useless.

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Wissenschaft und Methode. HENRI POINCARÉ. Leipzig und Berlin: B. G. Teubner. 1914. Pp. iv + 283.

This translation, by F. and L. Lindemann, is the third of M. Poincaré's philosophical writings to make its way into the German tongue. To the original text the translators have appended about 20 pages of "explanatory and literary annotations to facilitate the reader's penetration into the questions and problems treated." These consist largely of references to parallel passages in the author's other writings and to the sources of the subject-matter under discussion.

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JOURNALS AND NEW BOOKS

THE AMERICAN JOURNAL OF PSYCHOLOGY. April, 1915. *Automatic writing* (pp. 161-195): JUNE E. DOWNEY and JOHN E. ANDERSON.—Writing certain passages, reading aloud, and reading silently were practised. By writing and introducing distractions in the way of reading or adding it was found that both processes were slowed down, but the slowing was not great. Simultaneous motor processes occurred, while only a bit of mental simultaneity occurred. Two operations can be carried on simultaneously provided little sensory control is needed. Two mental operations can be synchronized with little loss in efficiency.

The Study of Dreams (pp. 196-210): MADISON BENTLEY.—A uniform method for group work is presented. This method developed introspection in its most favorable forms. *Tests on Adaptive Intelligence in Dogs and Cats, as compared with Adoptive Intelligence in Rhesus Monkey* (pp. 211-216): W. T. SHEPHERD.—Cats and dogs were found inferior to Rhesus monkeys in experiments designed to bring out adaptive intelligence. *Experimental Studies in Recall and Recognition* (216-228): EDITH F. MULHALL.—Primacy and recency are more important in recall than in recognition, while in the latter associations play an important rôle. *Note on the Psychology of Shame* (pp. 229-235): THEODATE L. SMITH.—Shame developed from the more primitive emotions such as fear and disgust. Essentially it seems to be a conflict between some content of consciousness and custom, conventionality, ideal self, etc. *The Origin of Laughter* (pp. 236-246): SYLVIA H. BLISS.—Laughter arises when convention is laid aside and life returns to primitive conditions. Laughter is an instructive reaction that has been important in the evolution of man. *The Form Curve of Practise in the Case of Addition* (pp. 247-250): EDWARD L. THORNDIKE. *Ghosts and the Projection of Visual Images* (pp. 251-257): LILLIEN J. MARTIN.—Students who had seen ghosts could project images with comparative ease. *Sensation and System* (pp. 258-267): E. B. TITCHENER.—A criticism and discussions of C. Rahn's "The Relation of Sensation to other Categories in Contemporary Psychology." A psychological system must always remain subordinate to the data available. *Sound Localization under Determined Expectation* (pp. 268-285): L. R. GEISSLER.—Much front-back confusion was found in the horizontal plane. Under negative instruction accuracy was decreased 10 per cent. Sounds are expected more often in front than from the back. Localization was found to be more accurate for the left ear. *Minor Studies from the Psychological Laboratory of Vassar College* (pp. 286-299); *The Influence of Suppressing Articulation on the Favorable Effect of Distributing Repetitions*: MILDRED MOULD, LOIS TREADWELL, and M. F. WASHBURN.—Law of superiority of distributed repetition effects motor learning chiefly. *Affective Sensitiveness to Colors, Tone Intervals, and Articulate Sounds*: MARGARET BABBITT, MARJORY WOODS, and M. F. WASHBURN. General indifference was found. *The Influence of Fatigue on Affective Sensitiveness to Colors*: HARRIET ROBBINS, DOROTHY SMITH, and M. F. WASHBURN.—Fatigue diminishes the affective sensibility. *The Source of Affective Reactions to Articulate Sounds*: LOUISE N. GARVER, JOSEPHINE M. GLEASON, and M. F. WASHBURN.—Vowel sounds do not necessarily derive their affective character from association. *Minor Studies from the Psychological Laboratory of Cornell University* (pp. 296-299): *On Intensive and Qualitative Judgments of Light Sensations*: E. J. GATES.—Intensive judgments result from insistence or power to catch attention. *Book Reviews* (pp. 300-310). Agostino Gemelli, *Il Metodo degli Equivalenti. Contributo allo Studio dei Processi di Confronto*: SAMUEL W. FERNBERGER. David Mitchell, *The Influence of Distractions on the Formation of Judgments in Lifted Weight Experiments*: SAMUEL W. FERNBERGER. E. Meumann. *The Psychology of Learning; an*

Experimental Investigation of the Economy and Technique of Memory: E. H. CAMERON. Hugo Münsterberg, *Grundzüge der Psychotechnik*; A. H. SUTHERLAND. Jerome Dowd, *The Negro Races*, ALBERT N. GILBERTSON.

Book Notes: (pp. 311-312): Henry Holt, *On the Cosmic Relations*. Robert Howland Chase, *Mental Medicine and Nursing*. William Healy, *The Individual Delinquent, A Text Book of Diagnosis and Prognosis for All Concerned in Understanding Offenders*. James Mark Baldwin, *Genetic Theory of Reality; The Outcome of Genetic Logic as Issuing in the Esthetic Theory of Reality Called Pancalism*. Edward L. Thorndike, *Educational Psychology; Briefer Course. The Psychological Researches of James McKeen Cattell; A Review by Some of His Pupils*. Bertah Van Hoosen, *Scopolamine-morphine Anesthesia*.

Phythian-Adams, W. J. *Mithraism*. Chicago: Open Court Publishing Company. 1915. Pp. xi + 95. 40 cents.

Proceedings of the Aristotelian Society. New Series, Vol. XV., containing the papers read before the society during the thirty-sixth session, 1914-15. London: Williams and Norgate. 1915. Pp. 442. 10 s. 6 d.

Robb, Alfred A. *A Theory of Time and Space*. Cambridge, England: University Press. 1914. Pp. vi + 373. 10 s. 6 d.

NOTES AND NEWS

At the San Francisco joint meeting of Section H of the American Association for the Advancement of Science and the American Psychological Association, at the University of California and Stanford University, the following general topics were discussed: "Mental Tests and their Pedagogical Significance," "Studies in Experimental Psychology," "Psychical Research," "Psychology and Medicine," "Mental Hygiene," "Animal Psychology," and "Studies in Educational Psychology." The sessions were begun on August 3 and lasted through August 6. The committee on programme consisted of Professors Lillian J. Martin, chairman, Stanford University; Frank Angell, Stanford University; Warner Brown, University of California; J. E. Coover, Stanford University; and George M. Stratton, University of California.

PROFESSOR MAURICE DE WULF, of the University of Louvain, arrived in Boston from Bordeaux on the *Rochambeau* on September 7. Professor de Wulf will give a course on the History of Medieval Philosophy and an advanced course on Medieval Interpretations of Aristotle with especial attention to St. Thomas's two treatises the "De Ente et Essentia" and the "De Unitate Intellectus," at Harvard University.

MR. H. B. REED, who was in the psychological department of the University of Illinois last year, has been appointed head of the newly-created department of philosophy and psychology at the University of Idaho.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

THE LOGIC OF JUDGMENTS OF PRACTISE

III. SENSE-PERCEPTION AS KNOWLEDGE

I have mentioned incidentally, in my former article, that it is conceivable that the failure to give adequate consideration to the logical form of practical judgments may have a compromising effect upon the consideration of other forms.¹ I now intend to develop this remark with regard to sense-perception as a form of knowledge. The topic is so bound up with a multitude of perplexing psychological and epistemological traditions that I shall have first to make it reasonably clear what it is and what it is not which I propose to discuss. I endeavored in an earlier series of papers² to point out that the question of the *material* of sense-perception is not, as such, a problem of the theory of knowledge at all, but simply a problem of the occurrence of a certain material—a problem of causal conditions and consequences. That is to say, the problem presented by an optical image³ of a bent stick, or by a dream, or by "secondary" sensory qualities is properly a problem of physics—of the conditions of occurrence, and not of truth or falsity, fact or fiction. That the existence of a red *quale* is dependent upon disturbances of a certain velocity of a medium in connection with certain changes of the organism is not to be confused with the notion that red is a way of knowing, in some more or less adequate fashion, some more "real" object or of knowing itself. The fact of causation—or functional dependence—no more makes the *quale* an "appearance" to the mind of something more real than itself or of itself than it makes bubbles on the water a real fish transferred by some cognitive distortion into a region of appearance. With a little stretching we may use the term "appearance" in either case, but the term only means that the red *quale* or the water-bubbles is an *obvious* or conspicuous thing from which we infer something else not so obvious.

¹ See this JOURNAL, Vol. XII., page 506.

² See this JOURNAL, Vol. VIII., page 393 in an article entitled "Brief Study in Realism."

³ I use the term image in the sense of optics, not of psychology.

The position which I have freely resumed here was not, however, adequately guarded on all sides. It implies that the question of the existence or presence of the *subject-matter* of even a complex sense perception may be treated as a question of physics. It also implies that the *existence* of sense perception may be treated as a problem of physics. But the position was also taken to imply what I did not mean—that *all* the problems of sense-perception are exhausted in this mode of treatment. There is still, on the contrary, the problem of the cognitive status of sense perception. So far from denying this fact, I meant rather to emphasize it in showing that this knowledge aspect was not to be identified—as it has been in both realistic and idealistic epistemologies—with the simple *occurrence* of presented subject-matter and with the *occurrence* of a perceptive act. It is often stated, for example, that primitive sense objects when they are stripped of all inferential material can not possibly be false—but with the implication that they, therefore, must be true. Well, I meant to go this statement one better—to state that they are neither true nor false—that is, that the distinction of true-or-false is as irrelevant and inapplicable as to any other existence, as it is, say, to being five feet high or having a low blood pressure. That this position when taken leaves over the question of sense perception as knowledge, as capable of truth or falsity, was assumed by me, but undoubtedly the assumption was not made sufficiently clear. It is this question, then, which I intend to discuss in this paper.

I

My first point is that some sense perceptions, at least (as matter of fact the great bulk of them), are without any doubt forms of practical judgments—or, more accurately, are terms in practical judgments as these have been defined—propositions as to what to do. When in walking down the street I see a sign on the lamp-post at the corner, I assuredly see a sign. Now in ordinary context (I do not say always or necessarily) this is a sign of what to do—to continue walking or to turn. The other term of the proposition may not be stated or it may be; it is probably more often tacit. Of course, I have taken the case of the sign purposely. But the case may be extended. The lamp-post as perceived is to a lamp-lighter a sign of something else than a turn, but still a sign of something to be done. To another man, it may be a sign of a possible support. I am anxious not to force the scope of cases of this class beyond what would be accepted by any unbiased person, but I wish to point out that certain features of the perceived object, as a cognitive term, which do not seem at first sight to fall within this class, turn out

upon analysis to do so. It may be said, for example, that our supposed pedestrian perceives much besides that which serves as evidence of the thing to be done. He perceives the lamp-post, for example, and possibly the carbons of the arc. And these assuredly do not enter into the indication of what to do or how to do it.

The reply is threefold. In the first place, it is easy—and usual—to read back into the sense perception more than was actually in it. It is easy to *recall* the familiar features of the lamp-post; it is practically impossible—or at least very unusual—to recall what was actually perceived. So we read the former into the latter. The *tendency* is for the actual perception to limit itself to the minimum which will serve as sign. But, in the second place, since it is never wholly so limited, since there is always a surplusage of perceived object, the fact stated in the objection is admitted. But it is precisely this surplusage which has not *cognitive* status. It does not serve as a sign, but neither is it *known*, or a term in knowledge. A child, walking by his father's side, with no aim and hence no reason for securing indications of what to do, will probably see more in his idle curiosity than his parent. He will have more presented material. But this does not mean that he is making more propositions, but only that he is getting more material for possible propositions. It means, in short, that he is in an esthetic attitude of realization rather than in a cognitive attitude. But even the most economical observer has some esthetic, non-cognitive, surplusage.⁴ In the third place, some surplusage is necessary for the existence of the sign function. Independently of the fact that it may be required to render the sign specific, action is free (its variation is under control) in the degree in which alternatives are present. The pedestrian has probably the two alternatives in mind: to go straight on or to turn. The perceived object might indicate to him another alternative—to stop and inquire of a passer-by. And, as is obvious in a more complicated case, it is the extent of the perceived object which both multiplies alternative ways of acting and gives the ground for selecting among them.⁵ A physician, for example, deliberately avoids such hard and fast alternatives as have been supposed in our instance. He does not observe simply to get an indication of whether the man is well or ill, but, to determine what to do, he extends his explorations over a wide field. Much of his perceived object field is immaterial to what he finally does; that is, it does not serve as sign.

⁴ That something of the cognitive, something of the sign or term function enters in as a catalyzer, so to speak, in even the most esthetic experiences, seems to be altogether probable, but that question it is not necessary to raise here.

⁵ See my article on "Perception and Organic Action," this JOURNAL, Vol. IX., page 645.

But it is all relevant to *judging* what he is to do. We may fairly conclude that sense perception as a term in practical judgment *must* include more than the element which finally serves as sign. If it did not, there would be no perception, but only a direct stimulus to action.⁶

The conclusion that such perceptions as we have been considering are terms in an inference is to be carefully discriminated from the loose statement that sense perceptions are unconscious inferences. There is a great difference between saying that the perception of a shape affords an indication of how to act and saying that the perception of shape is itself an inference. That definite shapes would not be perceived, if it were not for neural changes brought about in prior inferences made on the basis of data which were not as perceived *definite* shapes, is a possibility; it may be, for aught I know, an ascertained fact. Such telescoping of a perceived object with the object inferred from it may be a constant outcome; but in any case the telescoping is not a matter of a present inference going on unconsciously, but is the organic result of a modification occurring in consequence of prior inferences. In similar fashion, to say that to see a table is to get an indication of something to write on is in no way to say that the perception of a table is an inference from sensory data. To say that certain earlier perceived objects not having the character, as perceived, of a table have now "fused" with the results of inferences drawn from them is not to say that the perception of the table is now an inference. Suppose we say that the first perception was of colored patches; that we inferred from this the possibility of reaching and touching, and that on performing these acts we secured certain qualities of hardness, smoothness, etc., and that these are now all fused with the color-patches. At most this only signifies that certain *previously* inferred qualities have now become consolidated with qualities from which they were formerly inferred. And such fusion or consolidation is precisely *not* inference. As matter of fact, such "fusion" of qualities, given and *formerly* inferred, is but a matter of speaking. What has really happened is that brain processes which formerly happened successively now happen simultaneously. What we are dealing with is not a fact of cognition, but a fact of the conditions of occurrence of something.

⁶ The superstition that whatever influences the action of a conscious being must have been an unconscious sensation or perception should be summarily dismissed. We are active beings from the start and are naturally, wholly apart from consciousness, engaged in redirecting our action in response to changes in our surroundings. They are *alternative* possibilities, and hence an indeterminate situation, which change direct response into a response mediated by a perception as a sign of possibilities.

Let us apply the results thus far reached to the question of sense "illusions." The bent reed in the water comes naturally to mind. Purely physical considerations account for the refraction of the light in giving an optical image of a bent stick. This has nothing to do with knowledge or with sense-perception—with seeing. It is simply and wholly a matter of the properties of light and a lens. In the past, however, light refracted and unrefracted, has been a constant stimulus to responsive actions. It is a matter of the native constitution of the organism that light stimulates the eyes to follow and the arms to reach and the hands to clutch and handle. As a consequence, certain arrangements of reflected and refracted light have become a sign of the performance of certain specific acts of handling and touching. As a rule, the stimuli and reactions have occurred in an approximately homogeneous medium—the air. The system of signs or indices of action have been based upon this fact and accommodated to it. A habit or bias in favor of a certain kind of inferred action has been set up. We infer from a bent ray of light that the hand, in touching the reflecting object, will, at a certain point, have to change its direction. This habit is carried over to a medium in which the conclusion does not hold. Instead of saying that light is bent—which it is—we *infer* that the stick is bent: we infer that the hand could not protract a straight course in handling the object. But an expert fisherman never makes such an error in spearing fish. Reacting in media of different refractive capacities, he bases his signs and inferences upon the conditions and results of his media. I see no difference between these cases and that of a man who can read his own tongue. He sees the word "pain" and infers it means a certain physical discomfort. As matter of fact, the thing perceived exists in an unfamiliar medium and signifies bread. To the one accustomed to the French language the right inference occurs.⁷

II

So far as I can see, the pronounced tendency to regard the perceived object as itself the object of a peculiar kind of knowledge instead of as a term in knowledge of the usual kind has two chief causes. One is the confirmed habit of neglecting the wide scope and import of practical judgments. This leads to overlooking the responsive act as the other term indicated by the perception, and to taking the perceived object as the whole of the situation just by itself. The other cause is the fact that just because perceived objects are constantly employed as evidence of what is to be done—or how to do something—they become themselves the objects of pro-

⁷ Compare Woodbridge, this JOURNAL, Vol. X., page 5.

longed and careful scrutiny. We pass naturally and inevitably from recognition to *observation*. The inference will take care of itself if the datum is properly determined. At the present day, a skilled physician will have little difficulty in inferring typhoid instead of malaria from certain symptoms provided he can make certain observations—that is, secure certain data from which to infer. The labor of intelligence is thus transferred from the inference to the determination of data—but the data are determined in the interests of inference and as parts of an inference.

At this point, a significant complication enters in. The ordinary assumption in the discussion of the relation of perceived objects to knowledge is that “the” object—the real object—of knowledge in perception is the thing which *caused* the qualities which are given. It is assumed, that is, that the other term of a proposition in which a given sense datum is one term *must* be the thing which produced it. Since this producing object does not appear for the most part in ordinary sense perception, we have on our hands perception as an epistemological problem—the relation of an appearance to some reality which it, somehow, conceals rather than leads to. Hence also the difficulties of “reconciling” scientific knowledge in physics where these causes *are* the terms of the propositions with “empirical” or sense perception knowledge. Here is where the primary advantage of recognizing that ordinary sense perceptions are forms of practical judgment comes in. In these the other term is open and above board—it is the thing to be done, the response to be selected. To borrow an illustration of Professor Woodbridge’s: A certain sound indicates to the mother that her baby needs attention. If there is error it is not because the sound ought to mean so many vibrations of the air, while as matter of fact it doesn’t even suggest air vibrations, but because there is wrong inference as to the act to be performed.

I imagine that if error never occurred in inferences of this sort the human race would have gone on quite contented with inferences of the practical type. However that may be, errors *do* occur and the endeavor to control inference as to consequences (so as to reduce their likelihood of error) leads to propositions where the “object” of the perceived thing is not something to be done, but the cause which produced it. The mother finds her baby peacefully sleeping and says the baby didn’t *make* the noise. She investigates and decides a swinging door *made* it. Instead of inferring a consequence, she infers a cause. If she had so identified the noise in the first place, she might only have concluded that the hinges needed oiling.

Now where does the argument stand? The proper control of inference in specific cases is found (*a*) to *lie* in the proper identification of the datum. If the perception is of a certain kind, the

inference takes place as a matter of course; or else it can be suspended until more adequate data are found, and thus error is avoided even if truth be not found. Furthermore (*b*) it is discovered that the most effective way of identifying datum (and securing adequate data) is by inference to its cause. The mother stops short with the baby and the door as causes. But the same motives which made her transfer her inference from consequences to its conditions are the motives which lead others to inferring from sounds to vibrations of air. Hence our scientific propositions about sensory data. They are not, as such, about things to do, but about things which have been done, have happened—"facts." But they have reference, nevertheless, to inferences regarding consequences to be effected. They are the means of securing data which are of a character to prevent errors which would otherwise occur, and to facilitate an entirely new crop of inferences as to possibilities—means and ends—of action. That scientific men should be conscious of this reference or even interested in it is not at all necessary. I am talking about the logic of propositions, not about biography or psychology. If I reverted to psychology, it would be to point out that there is no reason in the world why the practical activity of some men should not be predominantly directed into the pursuits connected with discovery. The extent in which they actually are so directed depends, however, upon social conditions.

III

We are brought to a consideration of the notion of "primitive" sense data. It was for long customary to treat the attempt to define true knowledge in terms of construction from sense data as a confusion of psychology—or the history of the growth of knowledge—with logic, the theory of the character of knowledge as knowledge. As matter of fact, there is confusion, but in the opposite direction. The attempt involved a confusion of logic with psychology—that is, it presented a phase of the technique of the control of inference as if it were natural history of the growth of ideas and beliefs. The chief source of error in ordinary inference is an unperceived complexity of the data. That is, perception which is not itself critically controlled fails to present a sufficiently wide scope of data to secure differentia of possible inferences, and it fails to present, even in what is given, lines of cleavage which are important for proper inference. This is only an elaborate way of saying what scientific inquiry has made clear, that, for purposes of inference as to conditions of production, *ordinary* sense perception is too narrow, too confused, too vivid as to some *quales* and too blurred as to some others. Let us

confine our attention for the moment to its confusion. It has often been pointed out that sense qualities being just what they are, it is illegitimate to introduce such notions as obscurity or confusion into them: a slightly illuminated color is just as irretrievably what it is, as clearly itself, as an object in the broad glare of noon day. But the case stands otherwise when the *quale* is taken as a datum for inference. It is not as easy to identify a perceived object *for purposes of inference* in the dusk as in bright light. From the standpoint of an inference to be effected, the confusion is the same as an undue simplification. This simplification has the effect of making the *quale*, as a term of inference, ambiguous. To infer from it is to subject ourselves to the danger of the fallacies of ambiguity which are expounded in the text-books with reference to ambiguity of verbal symbols. The remedy is clearly the resolution, by experimental means, of what seems to be a simple datum into its "elements," that is, into more ultimate simples. This is a case of analysis; it differs from other modes of analysis only in the subject-matter upon which it is directed, viz., something which had been previously accepted as a simple whole. The result of this analysis is the existence as objects of perception of isolated qualities like the colors of the spectrum as that is scientifically determined, the tones of the scale in all their varying intensities, etc., in short, the "sensations" or sense qualities of contemporary psychology text-books or the "simple ideas" of sensation of Locke. They are not prior to sense-perception, but are the material of sense-perception elaborately discriminated.

Note that these simple data or elements are not original psychologically or historically; they are *logical* primitives—that is, irreducibles for purposes of inference. They are simply the most unambiguous and best defined objects of perception which can be secured to serve as *signs*. They are experimentally determined, with great art, precisely because the naturally given, the historical-psychological, objects in perception have been ambiguous or confused terms in inference. Hence they are replaced, by experimental means involving the use of a wide region of scientific knowledge deductively employed, by simpler sense objects. Stated in current phraseology, "sensations" (*i. e.*, qualities present to sense) are not the elements out of which perceptions are composed, constituted, or constructed; they are the finest, most carefully discriminated objects of perception. We do not first perceive a single, thoroughly defined shade, a tint and hue of red; its perception is the last refinement of observation. Such things are the limits of perception, but they are final, not initial limits. They are what is perceived under the most favorable possible conditions; conditions, moreover, which do not present themselves accidentally, but which have to be intentionally

and experimentally established and whose determination involves the use of a vast body of scientific propositions deductively brought to bear.

I hope it is now evident what was meant by saying that the current empirical logic presents us not with a confusion of psychology with logic, but with a wholesale taking of logical determinations as if they were facts of psychology. The confusion was begun by Locke—or rather made completely current through the enormous influence exercised by Locke—and some reference to Locke may be of aid in clearing up the point. Locke's conception of knowledge was logical, not psychological. He meant by knowledge thoroughly justified beliefs or propositions, "certainty," and carefully distinguished it from what passed current as knowledge at a given time. The latter he called "assent," opinion, belief, or judgment. Moreover, his interest in the latter was wholly logical. He was after an art of controlling the proper degree of assent to be given to matters of probability. In short, his sole aim was to determine certainty where certainty is possible and to determine the due degree of probability in the much vaster range of cases where only probability is attainable. A natural history of the growth of "knowledge" in the sense of what happens to pass for knowledge is the last of his interests. But he was completely under the domination of the ruling idea of his time: namely, that *Nature* is the norm of truth. Now the earliest period of human life presents the "work" of nature in its pure and unadulterated form. The normal is the original, and the original is the normative. Nature is both beneficent and truthful in its work; it retains all the properties of the Supreme Being whose vice-regent it is. To get the logical ultimates we have only, therefore, to get back to the natural primitives. Under the influence of such ideas, Locke writes a mythology of the history of knowledge, starting from clear and distinct meanings, each simple, well-defined, sharply and unambiguously just what it is on its face, without concealments and complications, and proceeds by "natural" compoundings up to the store of complex ideas, and the perception of simple relations of agreement among ideas: a perception always certain if the ideas are simple, and always controllable in the case of the complex ideas if we consider the simple ideas and connections by which they are reached. Thus he established the habit of taking logical discriminations as historical or psychological primitives—as "sources" of beliefs and knowledge instead of as checks upon inference.

I hope reference to Locke will not make him a scapegoat. I should not have mentioned him if it were not that this way of looking at things found its way over into orthodox psychology and then back again into the foundations of logical theory. It may be said

to be the stock in trade of the school of empiricist logicians, and (what is even more important) of the other schools of logic whenever they are dealing with propositions of perception and observation. It led to the supposition that there is a kind of *knowledge* which is directly given in simple apprehension (or sense acquaintance) implying no inference and yet basic to inference. The forcing of problems of epistemology into logic is an inevitable consequence. If what is given in sense is taken as a kind of knowledge, one has to raise the problem of the place and office of the organism in its being given or presented: the mind-body problem henceforth haunts the foundations of logic.⁸ Moreover, since the propositions of physics can not be found among these simple data and these scientific propositions give us the constitution of nature, we have on our hands the problem of the reconciliation of the "world" of sense-perception and the "world" of science. Shall we take the former as an appearance of the latter? If so, how can we argue from appearance—that is, sense perceptions—to reality? How can we transcend the given which is appearance and infer a reality behind, much less make any verifiable judgments about what it is? Relativism or a psychic idealism are fruits. Or at all events the question of the possible validity of scientific propositions becomes a problem.⁹ Moreover, the given in sense varies with the position and structure of the "percipient." Consequently we have the epistemologic problem of the relation of a number of private worlds of knowledge to the one public and impersonal world of science. And so it goes.

IV

I am not trying to discuss or solve these problems. On the contrary, I am trying to show these problems exist only because of the identification of a datum which is determined with reference to inference and for the control of inference, as a knowledge-mode. As against this assumption I point to the following facts. What is actually given as matter of empirical fact may be indefinitely complicated and diffused. As empirically existent it contains already in its givenness functions of inference. Psychologically or historically these are primarily inferences as to what to do in given situations, where the perceived objects supply the signs (indications or evidence), instead of operating, as do unperceived objects, simply as direct stimuli to reactions. The perceived objects never constitute the whole given; they have a context of indefinite empirical extent in which they are set. To control inference it is necessary,

⁸ See, for example, Kemp Smith, this JOURNAL, Vol. IX., page 113.

⁹ Compare Mr. Russell's discussion of "Our Knowledge of the External World."

however, to analyze the situation—to determine what is data for inference and what isn't. This analysis involves discriminative resolution of what seem to be wholes into more ultimate simples. The resources of experimentation, all sorts of microscopic and telescopic and registering apparatus, are called in to perform that analysis. As a result we differentiate not merely visual data from auditory—a discrimination effected by experiments within the reach of everybody—but institute discriminations of vast multitude of visual and auditory data. Physics and physiology and anatomy all play a part in the analysis. We even carry the analysis to the point of regarding say a color as a self-included object unREFERRED to any other object. We may avoid false inference by conceiving it not as a quality of any object, but as a product of a nervous stimulation and reaction. That is, instead of referring it to a ribbon or piece of paper we may refer it to the organism. But all this is only a part of the technique of suspended inference. We avoid some habitual inference in order in the end to make a more careful inference.

Thus we escape, by a straightening out of our logic (by avoiding erecting a system of logical distinctions and checks into a mythological natural history), the epistemological problems. We also avoid the contradiction which haunts every epistemological scheme so far propounded. As matter of fact every proposition regarding what is "given" to sensation or perception is dependent upon the assumption of a vast amount of scientific knowledge which is the result of a multitude of prior analyses, verifications, and inferences. What a combination of Tantalus and Sisyphus we get when we fancy that we have cleared the slate of all these material implications, fancy that we have really started with simple and independent givens, and then try to show how from these original givens we can arrive at the very knowledge which we have all the time employed in the determination of the simple sense data!

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INTROSPECTION AS A BIOLOGICAL METHOD

IN reading Professor Woodbridge's stimulating article on the Belief in Sensations,¹ I have been impressed by the fact that the conclusion to which he was led, namely, that sensations are not elements of consciousness in any intelligible sense, finds strong support from the neurological side in the difficulty of finding any cortical

¹ Woodbridge, Frederick J. E., "The Belief in Sensations," this JOURNAL, Vol. X., pages 599-608.

mechanism for performing such functions as the doctrine of simple sensations implies. It is true that biology can not as yet formulate a general schema of the mechanism of consciousness; the same holds true for many of the so-called physiological functions, about which, however, we profess to have acquired a large body of scientific truth. Neurological research has, moreover, yielded many facts which may at least serve to limit the field of future inquiry in this field.

I have recently endeavored to show² that there is no neurological mechanism by which simple sensory impulses can reach the cerebral cortex. There is no afferent tract leading into the cortex directly from a peripheral sense organ or from any center within the brain which is "pure," that is, devoted to a single sensory function. On the other hand, every afferent nervous impulse on its way to the cortex is to some extent affected by its passage through the various subcortical correlation centers; that is, it carries a *quale* of central origin. And this same afferent impulse in its passage through the spinal cord and brain stem may, before reaching the cortex, discharge collateral impulses into the lower centers of reflex coordination, from which incipient (or even actually consummated) motor responses are discharged previous to the cortical reaction. These motor discharges may, through the "back-stroke" action, in turn exert an influence upon the slower cortical reaction.

The cortex must, therefore, be thought of as acting through the subcortical reflex mechanisms, not in their stead, and the raw materials of cortical activity are not simple sense data, but highly complex nervous processes which have been elaborated on the reflex or instinctive plane. The efferent cortical discharge must also act through these same reflex mechanisms, whose pattern is largely preformed and innate.

It is commonly believed that the higher conscious processes are related in some way to the cerebral cortex, and this belief rests on as secure a scientific basis as any other physiologically established relation. The essentials of cortical process seem to consist, not in putting raw sense data into relation with each other, but in integrating complex physiological functions which are already under way and directing them by inhibition, reinforcement, or otherwise in the light of the previous experience of the individual (physiological or psychological memory). Whether the cortical centers can initiate any process *de novo* and whether cortical associational activity can be long maintained apart from some sort of subcortical influence are open to question. But even if an affirmative answer be given to

² Herrick, C. Judson, "Some Reflections on the Origin and Significance of the Cerebral Cortex," *Journal of Animal Behavior*, Vol. III., pages 222-236.

these questions, it still remains true that the materials with which these processes work have been in last analysis derived from previous sensori-motor processes which have left structural or other vestiges in the cortex. In other words, the cortex is fundamentally an organ of control over various types of interaction between external (environmental) and internal (physiological) processes.

Neurologists who regard the cerebral cortex as in some sense the organ of consciousness will, therefore, support Professor Woodbridge in his contention that simple sensations can not be regarded as elements of consciousness. But when he asks further, "what the objects of consciousness as a matter of fact are," one is inclined to raise the question, Is the search for an "object of consciousness" the wisest road to take? Are not these "objects" (percepts, constructs, ejects, or what-not) themselves part of the conscious process? And should not our attention be directed to the entire process as process rather than to a search for any sort of static elements?

When I first read Professor Dewey's discussion of the reflex circuit³ he seemed to me to be reasoning in a circle in more ways than one; but upon further reflection I have come to feel that some such cyclic relation as he develops for reflexes is also true on the physiological side for the conscious process, with the environment at one end of the diameter and the cerebral cortex at the other end. Psychologically also the subject and the "object" seem to stand in some such antithetical relation, neither having real existence apart from the other or apart from the total process.⁴

The complex processes involved in human speech exhibit the same cycle of mutually interacting central and peripheral processes. It is not uncommon to find authors who can not compose without the stimulus of the pencil between the fingers to start the cortical machinery of sentence formation, or public speakers whose thoughts refuse to flow in the seclusion of the study, but who think logically and speak fluently on the rostrum before an audience. The objects of thought are not present in the mind at the beginning of utterance, but they grow up within the situation as it develops.⁵

The neurone as a unit of cerebral structure has only a very limited value for certain restricted lines of inquiry. The significant units in neurology are the reflex circuits and other functional connections as tied up into working systems. I wonder if there

³ Dewey, J., "The Reflex Arc Concept in Psychology," *Psych. Rev.*, Vol. III., page 357.

⁴ Herrick, C. Judson, "A Functional View of Nature as Seen by a Biologist," this JOURNAL, Vol. II., pages 428-438.

⁵ Pillsbury, W. B., "The Mental Antecedents of Speech," this JOURNAL, Vol. XII., pages 116-127.

are any psychological "elements" which have more than a similarly restricted value. The search for typical *processes* may not give us so simple analytical schemata, but simple schemata are sometimes false charts which lead to shipwreck.

Simple psychological "elements," "objects of consciousness," and the like seem to have been the most cherished idols of the psychologist's faith. If these must be discarded, is everything psychological lost? So it appears to some. In Doctor Watson's recent book on "Behavior"⁶ he cheerfully throws out the psychological babe with the bath of metaphysics in which it was so long immersed. In fact, he seems to regard the child as ailing, if not moribund, and to view the empty tub with equanimity.

Whatever may be one's theory of the relation between body and mind, there is no justification for the elimination of introspective data from a comprehensive scheme of things. Possibly the new psychology may learn to get along without consciousness; but biology can not do so, for it is evidently a real factor in at least the higher stages of evolutionary history, and this factor can not be ignored in natural science.

We see in civilized man an organism with an enormous cerebral cortex and with a complex individual culture and social organization which permit of accurate forecasts of future events and cooperative enterprises. Now, even if it should ultimately prove possible to reduce all of these activities to "language habits" or other simple sensori-motor elements (a highly improbable supposition), it still remains true that each individual in these communities has his own subjective experience.

These personal experiences are, in fact, very real things, and to neglect them or brush them to one side as irrelevant epiphenomena is a thoroughly unscientific procedure. They form an integral part of the behavior complex as we know it in ourselves, and that they play some real part in the behavior of other men as this is objectively manifest to us is generally recognized. These are matters of common experience, involving no subtleties of philosophical analysis or metaphysical acumen. We know in the same way that we know other scientifically established facts that changes in bodily state, such as fatigue and various intoxications, are related to definite types of mental process and that mental processes in turn may be similarly related to definite motor acts, such as the shudder of fright and the tears of pity. And I opine that if we were not enmeshed in the web of a mischievous metaphysical tradition which for centuries has darkened counsel by words without knowledge, we should

⁶ Watson, John B., "Behavior: An Introduction to Comparative Psychology," New York, 1914.

find that the problems concerning the relation of mind and body offer no difficulties which are fundamentally different from those regarding the relation of any organ and its function, of any object and its properties.⁷

We know no ultimates in science. We do not know the ultimate cause of chemical affinity or gravitation or the ultimate mechanism of a neuro-muscular reflex, and our ignorance of the way in which the association centers of the cerebral cortex operate during the solution of a mathematical problem is of precisely the same order of magnitude. But we do know that falling bodies obey the law of inverse squares, that reflexes follow stimulation in definite lawful patterns, and that the conscious processes are modifiable by various well-known physiological agents.

Such a frankly physiological hypothesis does not, of course, solve all of the problems of mind and body, but it is not contradicted by any scientific facts at present known, and the evidence on the scientific side for regarding consciousness as a function of bodily organization is of exactly the same sort as that for regarding muscular movement or nervous conduction as such a function. It is true that we are not at present able to write an equation of energy transformation with mental process on one side and calories on the other; but we were no better off regarding nervous conduction until Tashiro's recent demonstration of metabolism in nerve fibers.⁸

What may be the precise relation between consciousness and metabolism is, of course, just the problem which is not yet solved. But whether it shall prove that certain kinds of metabolism are manifested in consciousness, just as other forms are manifested objectively as temperature changes, or whether consciousness is some sort of allotropic property which may manifest itself also in the objective way as physicochemical energy transformation, the fact remains that conscious processes are biological realities which can not be ignored in a comprehensive scheme of things. And the biologist can see no reason why they should not be observed in the only way open to him, namely, by introspection.

The genesis and the earliest stages in the unfolding of the psychic life are lost in the haze of our ignorance of the subjective experience of lower organisms and of very young children. Whether there is some sort of consciousness inherent in all living substances, as some

⁷ Compare Elliot P. Frost, "Can Biology and Physiology Dispense with Consciousness?" *Psych. Rev.*, Vol. XIX., page 248: "Consciousness is a process in precisely the same sense that osmosis or alimentation is a process."

⁸ Tashiro, S., "Carbon Dioxide Production from Nerve Fibers when Resting and when Stimulated; a Contribution to the Chemical Basis of Irritability," *Am. Jour. of Physiology*, Vol. XXXII., pages 107-136. Also, "On the Nature of the Nerve Impulse," *Proc. Nat. Acad. Sci.*, Vol. I., pages 110-114.

maintain, or whether consciousness, like some other functions (such as the ability to maintain a uniformly higher temperature than the environment, to build nests, and to suckle the young after birth), arose at some relatively late period in animal evolution, is at present a purely speculative question. We have not the data at hand for an answer. But it is from every standpoint highly probable that, whenever consciousness appeared, it came as a gradual development out of some preexisting type of function; for the doctrine of continuity of process in evolution is one of the corner-stones of modern biology, to which the current mutation hypotheses form only an apparent exception.

Furthermore, the analysis of the behavior of both lower animals and men speaks unequivocally in favor of regarding consciousness as a positive biological factor in animal evolution, and not as a mere epiphenomenon without causal significance. The series of physico-chemical phenomena in vital processes seems, when analyzed from the physiological standpoint alone, an unbroken closed system of causes and results. Nevertheless, when the widest possible view of the phenomena is taken, it is seen that in human communities, where consciousness is unquestionably present as a factor in the behavior complex, the objective vital manifestations are clearly different from those of the animal or plant communities in which consciousness is believed to be reduced or absent. The criteria of biological efficiency as this is manifested in human communities are far too complex to be analyzed by any physico-chemical standards now at our command; but when these phenomena in their aggregate are measured by the standard of biological efficiency, it is evident that consciousness here is a real factor.

We know that certain complex activities of the human nervous system may have a twofold manifestation: (1) As relatively simple and measurable physicochemical processes (such as the elimination of CO_2 and the generation of heat); and (2) as subjective experience. And the biological phenomena, when considered in all their aspects, suggest that the latter are as real causative factors in modifying behavior as the generation of heat by muscular work is a cause of an increase in the secretion of perspiration.

The fact that we have no means at our disposal for measuring directly the action of consciousness in terms of energy transformation is no proof that such action does not exist. Let us consider two men who are engaged upon their daily work. One is a laborer turning a windlass for hoisting rock out of a pit for the foundation of a bridge pier; the other is an engineer designing and computing specifications for the steel superstructure to be built upon the finished pier. If the work of each of these men be measured in the

ordinary calorimeter apparatus, it will doubtless be shown that the body of the laborer has expended far more energy than that of the engineer. Nevertheless, when the entire causal sequence is studied, it is evident that the steel bridge can not be erected without the work of the engineer any more than the pit can be dug without the work of the laborer. The causal sequence is as direct and simple in the one case as in the other. It is conceivable that an energy equation might be written in both cases; but the calorimeter can give us a very small part of the total equation in either case, though certainly a larger proportion of the whole in the case of the laborer than in that of the engineer. For upon the engineer and others of the class whom we are wont to call "the intellectuals" the whole burden of the advancement of civilization rests. And it must not be forgotten in this connection that the advancement of human civilization is a biological phenomenon. However necessary it may be to detach special parts of this complex for separate scientific treatment (as in anthropology, ethnology, sociology, psychology, and the like), we err if we do not at the end of our analysis keep in mind the fundamental unity of biological process throughout the whole.

So far as the facts now in hand show, the outstanding differences between a bee-hive, a tribe of savages, and a civilized community can be resolved into differences in the ratio of intelligent to non-intelligent activity in their behavior. The student of animal behavior is, of course, fully justified in leaving consciousness out of account in his study of animal communities and carrying his analysis of objective factors in behavior to its limit. That is the technique of his specialty, and that it is a useful technique has been abundantly shown. But can he rest content with this? Is there not abundant scientific justification for including consciousness as introspectively known among the factors of human behavior (and inferentially of the behavior of some other animals also)? That the data of introspection must be more critically used than has sometimes been done in the past is freely granted, and whether in any given programme of research it is expedient to use these data is a quite different question which must be decided on its own merits in each case.

Professor Pillsbury has recently said,⁹ "It is possible to neglect behavior in the study of consciousness, but not to neglect consciousness in the study of behavior." From our present point of view it would seem of doubtful expediency to draw any methodological distinction of this sort between these departments of study. It is a legitimate scientific procedure to isolate for experimental purposes any phenomena from their setting, provided that in the end the cor-

⁹ Pillsbury, W. B., "The Function and Test of Definition and Method in Psychology," *Science*, N. S., Vol. XLI, pages 371-380.

responding synthesis is effected. Recent students of animal behavior have shown that much can be gained by ignoring introspective data as far as possible and adhering rigidly to the objective method of investigation. That a very promising field for the study of human behavior is here open is equally evident. But it does not follow that because this method works well in the study of rats and guinea-pigs and of some human activities, therefore introspection under suitable control is a waste of effort. We conclude, then, that, while it is possible and legitimate to neglect consciousness in any particular programme of the study of behavior, it is both inexpedient and unscientific to eliminate the introspective method from the behaviorist's programme as a whole.

On the other hand, it is equally mischievous to assume that because certain useful generalizations can be drawn from a purely introspective study of consciousness, therefore behavior can be neglected in the psychologist's programme as a whole. We have had several centuries of study of this sort of "pure psychology" with results which are generally regarded as unsatisfactorily meager. We are, accordingly, somewhat surprised to see one of the leaders of the new school of animal behavior in America writing an "Introduction to Psychology"¹⁰ whose "sole purpose" is "to aid beginning students in the study of pure psychology," that is, of consciousness as such, quite apart from any bodily or other processes. This is confessedly a pedagogic device, for Professor Yerkes is careful to explain that there is a science of physiological psychology which his pupils may later have an opportunity to discover.

In a special research it is legitimate to use either the introspective or the objective method alone, as Doctor Yerkes has ably illustrated by his own work; but to a layman (who has, however, had considerable experience in teaching other scientific subjects) it would seem that the beginning student in psychology should be given an opportunity to see his science in its setting rather than as a completely detached discipline. In our medical schools we teach anatomy and physiology in separate laboratories and by different instructors, for reasons of practical convenience. But we require the student to study both subjects and we expect him to synthesize the courses so as to know the human body as a working machine. He sometimes fails to effect the synthesis, in which case we regard his courses in both subjects as valueless, no matter how letter-perfect he may be in the content of each taken by itself.

The details of the structure of the nervous system may be out of place in an elementary course in psychology, but the recognition of the fact that there is a functional relationship between the conscious

¹⁰ Yerkes, Robert M., "Introduction to Psychology," New York, 1911.

life and other vital processes is the foundation upon which alone a symmetrical superstructure can be built; and the sooner this can be impressed upon the beginning student the better for him and for the future of science.

The naïve mind has no interest in an "object" apart from its place in the general scheme of things. He asks, What is it for? How does it work? Science has at last caught up with this childlike attitude. By long and painful labor of many centuries we have come to see that purely descriptive studies are not science. We do not in science study bodies apart from their functions, nor disembodied functions. If psychology is to maintain its place among the sciences, it must not isolate itself from the rest of natural process by limiting its interest to pure introspection or to purely objective behavior.¹¹

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GREGARIOUSNESS AND THE IMPULSE TO CLASSIFY

WHAT I take to be one of the psychical expressions of that trait so marked in simian species, gregariousness, has recently been termed in ethnological circles the sense of participation, the feeling of being oneself related to what comes into consciousness. This mystical feeling is accompanied, we know, by ideas and impulses which give rise to many forms of conduct and many trains of theory. Magic and religion have hitherto yielded us the most obvious¹ and abundant illustrations of this aspect of mentality. Take the theory and practises of magical contagion, or in religion, the belief in possession and its ritual. For the moment, however, I would indicate how the sense of participation manifests itself in that part of the social organization we sometimes call status, the social categories.

These social categories may be summed up as the categories of age, sex, kin, caste, place-fellowship, friendship. Within the groups which this social differentiation establishes the gregarious instinct is concentrated, to them the sense of participation attaches, around them institutional life revolves, and into them every individual in so far as he is a member of society must fit. Anomalies do, of course, occur, but they are considered unsocial or anti-social,—nuisances or laughing-stocks, perverts, criminals, illegitimates, traitors.

¹¹ Since writing these lines my attention has been called to Professor Angell's very judicious analysis of this problem, "Behavior as a Category in Psychology," *Psych. Rev.*, Vol. XX., pages 255-270.

¹ The most obvious, because in supernaturalism we have secured a certain degree of that detachment or immunity from the sense of participation which makes rationalism possible.

But social conformity is not the only achievement of the social categories. They are ambitious, nay, greedy. They spread out over quite irrelevant matters, invading regions remote and, one might suppose, recondite. To almost everything sex is imputed—to sun and moon and earth and all things of the earth, animate or inanimate. For the Chinaman nature is divided into two great parts, *yang*, the male principle, embracing light, warmth, life, and *yin*, the female principle, embracing darkness, cold, death. To the Hopi Indian, North, South, and the Above are male; West, East, and the Below, female. In cosmologies seniority is also recognized. The soul of the world was made before the body, asserts Plato's spokesman Timaeus, for never would God have allowed the elder to serve the younger. That "women and other animals were framed from men" Timaeus has no doubt. Nor was it a mere accident that Adam was created before Eve. Caste makes claims, too, without the help of seniority. The head is the lord of the body, says the Greek, and because the front part of the body is more honorable than the back man was given by his creator a forward motion. In blood kinship the heavenly bodies are related, men and animals, species with species. Sun and moon are brother and sister, this species or that are the ancestors of tribe or clan, or its brethren. As for the provinces of language, art, and economy, not alone are they districted out among the differentiated social groups, each province is in itself subject to the societary classification—there is gender, for example, in language; manual labor has less social prestige than mental, art more than handicraft.

In brief, the habit of classifying along the lines the social group has differentiated itself the better to satisfy its own gregarious impulse, this habit recognizes in early cultures few barriers. The social categories color the whole of life. They tend to bring everything into relation with themselves, into their own bounds. Nor are they merely possessive; from their compulsive, imperious character rather are they obsessive.

Given the impulse to classify, the novel, the unclassifiable is disturbing, fearful. Here, may I suggest, is the origin of *mana*, the power imputed by the primitive mind to the mysterious. Fear of *mana*, fear of the unknown, is the feeling aroused by the unclassified, the feeling that the gregarious instinct has been frustrated.

In self-protection, men feel, *mana* must be given a place. Out of the endeavor to classify *mana*, to know it, out of curiosity about *mana*, as it were, arises magic, arises religion. The gods made in the likeness of man are man's successful attempts to categorize *mana*, the fearful unknown. In pantheons like the Greek or the Germanic or the Catholic Christian the classification is carried far—the categories

of sex, seniority, kinship, caste, place-fellowship, and even friendship, the junior category, all are at work.

Religions perish, fear of *mana* is more and more circumscribed, the specific classifications primitive man has made for nature are rejected, even the classifications he has made for himself, for society, are questioned, but the impulse to classify persists; it is the impetus left over, so to speak, from his first impulse for social classification, his earliest attempts to satisfy his gregarious instinct. Out of that instinct develop, we may say, not only scientific methods, but scientific curiosity and the will for scientific research. Science is a fruit of gregariousness.

In conclusion let me ask behaviorists if gregariousness among animals shows any relation to curiosity or to fear of the strange or novel? Are the more gregarious creatures the more curious? Are they more fearful of the unexpected or less? Or, put better, perhaps, are animals less fearful and more curious when they are together?

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REVIEWS AND ABSTRACTS OF LITERATURE

The Man of Genius. HERMANN TÜRK. London: Adam and Charles Black. 1914. Pp. 463.

Among the new insights into the German mind with which we have been favored this past year, not the least interesting has been the discovery of a certain contemptuous tolerance of morals as a set of rules and principles having jurisdiction only in the secondary affairs of life. It would seem that many Germans of education mean by morality merely the approved, but not rationally obligatory, customs of society. This appears to be Dr. Türk's view; for he says, for example, "Goethe is undoubtedly right when he says that 'the man who acts is always devoid of conscience.'" Yet, curiously enough, much the greater part of the author's book is distinctly ethical; and it is in that field that its chief, if not its sole, excellences are found.

There are, indeed, metaphysical sections; but they are quite uncritical, and rather hamper than further the argument of the book. It seems to be assumed that no enlightened reader will be Philistine enough to challenge the world-transcending Hindu and Neo-Platonic monism, while Spinoza is quoted with something like the naïve reverence of a medieval Thomist citing the Stagirite. Let the following extract—which might well be a modern epitome of one of the *Enneads*, and which is supported by no argument whatever—serve as a sample:

"God has divided Himself into an infinite number of creatures. He has descended from His infinite greatness, freedom, and perfection, and now lives in a humble form in the atom, in the worm, in man. Yet the

divine element does not renounce its nature even in its humble shape, but strives to return from the multiplicity of finite limited existences to the unity of the highest being, of the most perfect life" (p. 218).

Notwithstanding the expectations naturally aroused by the title, the author gives us no distinctly psychological analysis of the man of genius, but occupies himself almost exclusively with the ethical *conditions* of genius, ethical, that is, in the Anglo-Saxon sense. Taking as his text (frequently reiterated) the statement of Schopenhauer that "*genius* is simply the completest *objectivity*, *i. e.*, the objective tendency of the mind, as opposed to the subjective, which [latter] is directed to one's own self," Dr. Türck bids us find the secret of genius in the power (and habit) of its possessor of occupying himself with objects and affairs regardless of their bearing upon his selfish interests, and with full surrender to the implications and suggestions of the thing under consideration. The common man is blinded to the subtle, far-reaching, and perhaps inspiring relations of objects because he is obsessed with a persistent concern as to their bearings upon his own little self. He can not, for example, see the real forest, with its biological, esthetic, and metaphysical significance, because of his greedy interest in board-feet and market profits. Selfishness—which, following Schopenhauer, is identified with subjectivity—the author thinks of after the loose fashion of common life. There is no recognition of the fact that the so-called selfish man is really seeking simply certain satisfactions of desire, and is not—or at least is rarely—concerned with his self, is, indeed, full often acting against its best interests. Dr. Türck's thesis is that the man who is completely objective in his interests, who cares for things for themselves regardless of their bearing upon his "selfish" concerns, is able to find in the objects of sense stepping-stones, or, better, successive points of flight for sweeping upon wings of suggestion and insight through the wide domains of the universe. All things are his; in greater or less degree all existence is accessible to him. He is the man of unfettered insight, that is, the man of genius.

His genius may appear in one or more of three forms, according to the part of the conscious life in which this noble objectivity finds scope. (1) If that takes place in the field of perception, he becomes an artistic genius. "To be able to paint with genius," we are told, "one must be able to see with genius. . . . When a bull and a Raphael contemplate the same landscape, the landscape of course remains the same; what is not the same, however, is the impression received by each. . . . A Raphael . . . sees even the most delicate shades of color . . . and all these colors, lights, and lines awaken peculiar, harmonious feelings in his mind" (p. 4). In the forest, for example, "the artist loves the object that he contemplates . . . he is engrossed by the sight of it. . . . He is, indeed, all eye and ear, delighted by the fragment of still-life before him that speaks in so eloquent a language to his heart; he seeks to give expression to his feelings, and thus there arises . . . a poem, a song, a picture, or a marble statue" (pp. 16 ff.). That it is the artist, and not the common man, who thus sees and feels and expresses himself is due to the fact that "among the numerous sense stimulations that reach us simultaneously at any given instant we always make

a selection," and "this selection . . . is directly influenced by man's conscious or unconscious will, by his impulses, inclinations, interests, by his whole character" (p. 10)—that is, by ethical factors in the individual. It is added that "this disinterested absorption in the contemplation of the object is identical with love for the object" (p. 13), and that the man thus objectively interested in (or loving) the objects of the world "recognizes himself in them, and God within him perceives Himself in His world. . . . The artistic genius observes with the eyes and hears with the ears of God" (pp. 14 ff.).

(2) *Philosophical* genius has its seat in the second stage of mental process, that of reflection. It is "objectivity, disinterestedness, love in thinking" (p. 29), thinking in this case being, not the ordinary man's adjustments of plans for realizing "selfish" ends, but the tracing out of the universal and eternal relations of things,—the invisible framework of the universe. Everything, we are assured, is "based on a plan or an idea," and to investigate a thing philosophically "is to comprehend its total idea, . . . to reproduce in one's own mind that plan on which the life and action of the object is founded" (p. 36). "Now, the essential mark of genius is this absorption in the real nature of objects" (p. 37); that is, it is, in Spinozian speech, "the intellectual love of God."

(3) *Practical* genius, likewise, is rooted in objectivity, but now in the motor field. "The mode of action of the man of genius will consist in doing what he does with all his soul, with a complete devotion to the work itself, be it what it may" (p. 53). Every ulterior end being either absent or subordinate, the activity of genius partakes "of the nature of *play*." "The secret of the all-conquering power of genius lies precisely in the fact it inwardly assumes a free [*i. e.*, "unselfish"] attitude towards its own conduct, and consequently, unhampered by personal consideration, acts with extraordinary energy and boldness. . . . The activity of genius is in the highest sense of the word *play*, it is free activity, aimless for the man himself like any other game" (p. 83).

Metaphysics apart, these points seem to be well taken. They fall in quite harmoniously, as the author points out, with the teaching of Jesus as to the need of losing one's life in order, in the highest sense, to find it. But what we have offered us is evidently a description rather than a definition of the man of genius. We can not convert the account, and say that every man who attains to any one—or, indeed, to all—of these kinds of objectivity is a genius. He is no doubt a superior man and an admirable one. He is, perhaps, the wise man of the Greek ethical schools; but he is by no means necessarily a genius. No man of ordinary mental endowment could by a lifetime of persistent self-schooling in "objectivity" raise himself to the genius level; for genius connotes a distinctly unusual amount or intensity of power, and not merely the right application of it. The author ignores this rather obvious truth, notwithstanding the fact that the study of "Faust," with which his fifth chapter is taken up, brings him repeatedly to Goethe's references to the "magic" of genius. He sees, indeed, that in the poem "magic is the symbolic expression for the power of genius which gives man a clearer insight and can, so to say, bring about marvels"; yet

the word seems to have no psychological suggestions for him. I think his readers would like greatly to know in what that "magic" consists; whether, for example, it lies simply in a heightening and wider organization of the subliminal process of ordinary perception and reflection.

Moreover, even ethically it may be doubted if Schopenhauer's "completest objectivity" is a *sufficient* account of the man of genius; for is not action which is truly self-regarding also characteristic of genius? In the case of the man of action the answer seems so obviously to be in the affirmative that our author is constrained to devote a chapter to the support of his claim that Alexander, Cæsar, and Napoleon were not properly self-seeking men (!), but were men who lived "in the Idea"—Goethe's phrase—the Idea "of the highest, the most perfect state of existence" (pp. 273 ff.). They threw themselves whole-heartedly into certain great plans, fully conscious that these, owing to the manifold contingency of the world, might well prove impossible to realize, but sought them none the less, because they felt impelled to the struggle; they enjoyed the game. The prizes that would go to the winner were so uncertain as to be secondary considerations with them.

Let it be granted that there is force in this consideration, it seems still to be true that, in his own way, the genius is often a self-seeker, a man of keen spiritual appetite and a vehement disposition to self-appropriation. What he looks upon as likely to make for his own self-development—matter of knowledge, for example, and still more suggestions for action—are pounced upon and made his own with little enough hesitation or scruple. Indeed, the distinction between self-seeking and devotion to the objective of which Dr. Türk makes so much is of very doubtful validity. The true distinction appears to be that between small and narrow interests—bodily satisfactions, for example,—and great ones.

Naturally a writer who exalts the centrifugal forces in human nature at the expense of the centripetal, and who honors Christ and Buddha because they are awakeners of "mental freedom" (in his objective sense) is not favorably disposed to the unbounded egoism of Nietzsche and Max Stirner. He is scandalized by Nietzsche's remark that it is "a sign of strong character, *when once the resolution has been taken* [*italics mine*], to shut the ear even to the best counter arguments,"—which, after all, is substantially the second maxim of the rationalist Descartes—and sees in it only a justification of stupid devotion to selfish interests.

Naturally, too, Lombroso's theory that genius is an abnormal development, an overgrowth of one part of the nature at the expense of other parts, is rejected by Dr. Türk. He criticizes the Italian's logic with much effect, not denying the "law of compensation" *in toto*, but maintaining that Lombroso greatly overworked it in the interest of his theory.

Interesting chapters are devoted to studies of Hamlet, Faust, and Byron's Manfred, in all of which creations the author finds illustrations of his doctrine of objectivity as the secret of genius. The book is excellently made as regards paper, print, and binding.

WILLIAM FORBES COOLEY.

Essays on the Life and Work of Newton. AUGUSTUS DE MORGAN.
 Edited, with notes and appendices, by PHILIP E. B. JOURDAIN. Chicago
 and London: The Open Court Publishing Company. 1914. Pp. xi
 + 198.

Praise should be accorded to both editor and publishers of this little volume for having made accessible to the general reader De Morgan's three incisive and brilliant essays on Newton, all of which are now very rare. The first essay here reprinted is a sketch of Newton's life which appeared in 1846 in "The Cabinet Portrait Gallery of British Worthies"; the second was written in 1852 for the "Companion to the Almanac," and deals with "Discoveries Relative to the Controversy on the Invention of Fluxions"; the third is a critical review of Brewster's "Memoirs of Newton" (1855), published by De Morgan the same year in the *North British Review*. To the last-named essay the editor has added as appendices an extract from De Morgan's biography of Leibniz which appeared anonymously in 1836, and a fragment from his book "Newton: his Friend: and his Niece" (1885). A very important contribution by the editor, aside from his numerous and valuable notes, is an appendix on the manuscripts and publications of Newton and Leibniz. It contains a list, in chronological order, of the most significant works relating to the memorable controversy about the invention of the differential or fluxional calculus. The student of this controversy will find helpful references to the history of the infinitesimal ideas prior to Newton and Leibniz, to the manuscripts and publications of these two thinkers on the invention of the calculus, and to some of the important works on their controversy.

The essays show De Morgan as a lucid stylist and judicious biographer. Biography for him is no "act of worship." While recognizing that Newton "is the greatest of philosophers, and one of the best of men" (p. 63), his hero is not "all hero." Although "the *Principia* would neutralize greater faults than Newton's" (p. 140), De Morgan is at pains to point out the grave defects in Newton's character, chief of which was "a morbid fear of opposition from others" (p. 37). To this "morbid fear" the biographer attributes Newton's treatment of Leibniz, of Flamsteed, and of Whiston, "in each case, a stain upon his memory" (p. 39). And to the same fear is to be ascribed his tendency to keep to himself his great inventions and discoveries. "A discovery of Newton," as De Morgan says, "was of a twofold character—he made it, and then others had to find out that he had made it" (p. 38). Most of his works had to be "extorted" from him by his friends, as it were; his famous views on universal gravitation, for instance, "would have remained his own secret if Halley and the Royal Society had not used the utmost force they could command" (p. 38). Newton seemed to have regarded his researches as ministering to his private satisfaction only, and it appears that "he expected all his discoveries to be received without opposition" (p. 135).

Newton's morbid fear of opposition, coupled with a "morbid suspicion of others," underlay, according to De Morgan, his highly unjust

conduct in his controversy with Leibniz. De Morgan proves at great length, with the aid of unimpeachable documentary evidence, that Leibniz was the independent co-inventor of the differential calculus, called by Newton the method of fluxions. And he goes much further than this when he asserts that, instead of Leibniz having derived any specific information of Newton's discovery, "Newton did derive from Leibniz (without being aware of the extent of his obligation, we think) the idea of the permanent use of an organized mode of mathematical expression" (p. 32). Be this as it may, Newton's entire conduct in the controversy,—the deliberate suppression from the third edition of the *Principia* of the famous scholium in which the independent discovery of Leibniz had previously been acknowledged; the "concoction" of the *Commercium Epistolicum*, for the materials of which De Morgan finds Newton himself as the real source; the unfair dealing with the correspondence that had passed between himself and Leibniz when he heard of the latter's death,—would indeed appear to give abundant proof "of an unhappy temper which sometimes overcame his moral feeling" (p. 45).

The controversy between Newton and Leibniz dominates most of the discussion throughout the essays. The zeal with which De Morgan enters upon his task of clearing Leibniz from the charge of plagiarism may not have entirely been detached in his mind from a subjective interest. He well knew what it meant to have the independence of a discovery questioned. It is interesting to recall that the same year which saw the publication of De Morgan's first essay on Newton also witnessed his controversy with Sir W. R. Hamilton regarding the priority of his own discovery of the logical principle of the quantification of the predicate.

While the clear and judicious analysis of Newton's character and the detailed and fair account of the controversy with Leibniz form the most significant contribution of these essays, both the student of Newton and the general reader will find in them much more that is of interest and value. The frontispiece, from an engraving by E. Scriven of Vanderbank's portrait of Newton, adds to the attractiveness of the volume.

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A History of Psychology. OTTO KLEMM. Translated by Emil Carl Wilm and Rudolf Pintner. New York: Charles Scribner's Sons. 1911. Pp. xiv + 380.

In 1911 the "History" appeared in German and was reviewed at length in this JOURNAL¹ by Professor R. S. Woodworth. The present reviewer, therefore, finds only a few words necessary in regard to the present translation. Professor Wilm has translated Chapters I.-VI. and Professor Pintner Chapters VII.-XII. There is evidence that much care has been taken and the result is a smooth English, which it is a pleasure to read. There has been a search for the proper translation of the technical terms and where there is the possibility of a misunderstanding the German word is given in parenthesis.

¹ This JOURNAL, Vol. IX., pages 218-220.

The translators have added a note upon the histories of psychology which have appeared in English and also a subject index. They have added and completed references and corrected the author index, which was carelessly compiled. It is a long and wearisome task to check up all the references in the foot-notes and the translators should be forgiven for not having found all the errors of the original.

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JOURNALS AND NEW BOOKS

MONIST. April, 1915. *The Disciples of John and the Odes of Solomon* (pp. 161-199): PRESERVED SMITH.—The Odes of Solomon were written by one of the disciples of John at Ephesus not long before A.D. 55. Ephesian parallels and references to the Odes confirm the hypothesis of their local origin; references to Johannite ceremony and belief confirm the hypothesis of their author's associations. *On the Methods of Theoretical Physics* (pp. 200-211): LUDWIG BOLTZMANN.—The tendency of modern physicists to invent and use mechanical models for the sake of visualizing their conceptions is indicated. *On the Experience of Time* (pp. 212-233): BERTRAND RUSSELL.—An attempt to discover the elements in immediate experience which lead to our knowledge of "mental time," i. e., the time "which arises through relations of subject and object" and "physical time," i. e., the time "which arises through relations of object and object." Certain definitions and propositions are stated and explained with the hope of forming a logical theory of time. *Newton's Hypotheses of Ether and of Gravitation from 1679 to 1693* (pp. 234-254): PHILIP E. B. JOURDAIN.—A continuation of the author's series on Newton, showing his "neutral position towards the question as to the nature of gravitation," his inclination to the belief that it was effected by the mediation of an ethereal medium, and his slighting of the question whether the attraction of two bodies was an essential property of matter. *On the Meaning of Social Psychology* (pp. 255-260): ROBERT H. GAULT.—Social psychology applies to social behavior of groups and individuals. Consciousness is social when one "takes cognizance of one's relations to others, and vice versa." It is not an "over-soul" or "superconsciousness." Social psychology "discusses . . . the selection and arrangement of stimuli by which those interactions that are appropriate to time and space may be brought about," and "the means by which old forms of interaction . . . are broken up" and new ones initiated. *The Overgod* (pp. 261-268): PAUL CARUS.—Poem. *Criticisms and Discussions.—On the Origin of the Hebrew Deity—Name El Shaddai*: F. M. BEHYMER. *The Nature and Perception of Things*: ALFRED H. JONES. *The Jews of Malabar*: WILFRED H. SCHOFF. *A New Era in the History of the "Apocrypha"*: CHARLES C. TORREY. *The Sabians*: PAUL CARUS. *Sir John Herschel on Hindu Mathematics. Tel*: QUINTIN WADDINGTON. *Motor Relations of Speech and Idea*: T. H. EVANS. *Book Reviews*. AUGUSTUS DE MORGAN, *A Budget of Paradoxes*: Edited by DAVID EUGENE SMITH.

THE PHILOSOPHICAL REVIEW. May, 1915. *Philosophy in France, 1913-14* (pp. 245-269): A. LALANDE. — The first part of this paper is a tribute to the work of the late Louis Couturat. Then follow general philosophy, esthetics, and psychological philosophy. The esthetic section is peculiarly rich in works of importance and interest. *Bergson and Science* (pp. 270-287): L. E. AKELEY. — Bergson's conception of creativeness has done much to weaken the finality of science. *Kant's Relation to Hume and Leibnitz* (pp. 288-296): NORMAN KEMP SMITH. — Kant's problem was "to reconcile Leibnitz's view of the function of thought with Hume's proof of the synthetic character of the causal principle." *Principles of Voluntarism* (pp. 297-313): H. W. WRIGHT. — The theory of knowledge has developed an opposition between the material world and the spiritual world which, "since it goes back to the will itself, can be removed only by activity of volition. It will be removed only when the order of movements is experienced as affording complete satisfaction to the system of personal interests" and the attainment of this is a practical, not a theoretical problem. *Reviews of Books*: J. Burnet, *Greek Philosophy. Part I. Thales to Plato*: W. A. HEIDEL. B. Croce, *Philosophy of the Practical, Economic, and Ethic*: J. H. TUFTS. Von Walter Strich, *Prinzipien der psychologischen Erkenntnis*: G. H. SABINE. F. Thilly, *A History of Philosophy*: C. M. BAKEWELL. *Notices of New Books. Summaries of Articles. Notes.*

Sears, Annie Lyman. *The Drama of the Spiritual Life*. New York: The Macmillan Company. 1915. Pp. xxiv + 495. \$3.00.

NOTES AND NEWS

A LIST of members of the teaching and scientific staffs of universities, technical schools, etc., of the United Kingdom with the British army is given in a recent number of *Nature*. Among those who are thus engaged are C. S. Myers, lecturer in experimental psychology at Cambridge; G. H. Turnbull, assistant lecturer in education in the University of Liverpool; W. Brown, reader in psychology in King's College, London; F. Aveling, lecturer in synthetic psychology, and C. Spearman, professor of philosophy of mind and logic in University College, London.

DR. BENJAMIN W. VAN RIPER, formerly assistant professor at Boston University, who left that institution because of theological controversies, has accepted a position in the psychological department of the State College of Pennsylvania.

DR. EMIL LASK, associate professor of philosophy at Heidelberg, and Dr. Waldemar Conrad, docent for philosophy at Halle, have been killed in the war.

MR. EPHRAIM E. ERICKSEN, principal of Murdock Academy, has been elected assistant professor of philosophy in the University of Utah.

DR. H. S. LANGFELD, of Harvard University, has been promoted to the grade of assistant professor.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

PHILOSOPHICAL HERESY

SYSTEMS of philosophy are the work of individuals. Even when a school is formed it prevails only in certain nations for a certain time, and unless the expression of dissent is suppressed by force, the dominant school even then is challenged by other schools no less plausible and sincere. Viewed from a sufficient distance, all systems of philosophy are seen to be personal, temperamental, accidental, and premature. They treat partial knowledge as if it were total knowledge: they take peripheral facts for central and typical facts: they confuse the grammar of human expression, in language, logic, or moral estimation, with the substantial structure of things. In a word, they are human heresies.

But if all philosophies are heresies, with what orthodoxy shall we contrast them? Evidently not with any philosophical or religious system, since it is just these systems that we are calling heretical. Much less with the collection of the critic's casual opinions. The more general the folly of mankind, the more likely is the critic himself to share it, especially as folly is a thing that folly is prone to impute. As the drunkard mutters, "you are drunk," so the philosopher scans the assemblage of his fellow-creatures and murmurs, "you are wrong." If we laugh at him for this, how shall we set up our personal opinions as a criterion by which the errors of mankind are to be judged?

The background of philosophical systems, the orthodoxy round which their heresies play, is no private or closed body of doctrine. It is merely the current imagination and good sense of mankind—something traditional, conventional, incoherent, and largely erroneous, like the assumptions of a man who has never reflected, yet something ingenuous, practically acceptable, fundamentally sound, and capable of correcting its own innocent errors. There is a knowledge which common life brings even to savages and which study, exploration, and the arts can clarify and make more precise; and this all men share in proportion to their competence and intelligence, no matter what philosophies or religions may fill their heads at the same time.

Heresies are systems that inherit all the claims of orthodoxy with only a part of its resources. In developing their chosen theme *à outrance*, they override the rest, though based on a quite similar authority. Heresy is thus no mere innocent error or native partiality, such as all natural beings are condemned to by their limited experience and faculties: it is rather an unnecessary error, a rebellious partisanship, a deliberate attachment to something the evidence against which is public and obvious; it is a sin against the light. This is none the less true because it is the excess of light at one point that produces and seems to justify this residual blindness. Philosophic systems are heretical because they abound in their own sense to the extent of denying or artificially transforming perfectly well-known matters, parts of that human orthodoxy to which they themselves must appeal for their foundations and for their plausibility.

The great misfortune of human orthodoxy is the natural apathy of reason. The beauty of truth is not great enough to attract the eye for its own sake. The truth is often ugly or terrible, and almost always less simple and unqualified than our love of eloquence would wish it to be. Discourse instinctively deviates from the truth, to set forth instead something more manageable, more rhythmical, more flattering. But the products of imagination sometimes strain it too much: the accumulated illusion suddenly collapses, and then for the first time we rub our eyes, and notice and express literally what we see and think. It is commonly at such times only that human orthodoxy makes much progress in articulation. A consequence of this is that its tenets are not arranged in an order appropriate to them or appropriate to their object. They do not form a logical hierarchy nor a clear natural history of the world. For they have not been reached by a gentle and continuous study of the truth, but rather by fits and starts, when some scandalous error exhausted people's patience and stung them into an eloquence and clearness they never knew before. Human orthodoxy is in its Apostolic Age; it has not yet had its Fathers or its Councils. Like early Christianity, it possesses instinct and tradition enough to exclude heresy after heresy as it arises, but it lacks a calm and adequate fund of doctrine that should not so much rebuke heresy as render heresy superfluous by solving beforehand the dark problems that provoke it.

Hence even when human orthodoxy has acquired a certain consistency, such that, for instance, an "Encyclopedia Britannica" can be compiled, older and collateral ideas have not disappeared. There are always at hand, for any meditative individual, a good many suggestions of experience which human orthodoxy has neither assimilated nor extirpated; and he may, if his genius so inclines, prefer one

of these unreclaimed or unreclaimable notions to orthodoxy as a whole, or he may try to combine it with a human orthodoxy modified or unhinged to suit it.

These backslidings, these reversions to the initial illogical wealth of the mind, produce various superstitious, mystical, or atavistic heresies. These mark the fact that, side by side with the waking life of reason, many animal illusions survive in the mind, many dramatic fancies and pre-rational habits of thought. Religious revelations and philosophies, when they do not express the deliverance of reason poetically, as they often do, but traverse reason altogether and undermine it mystically, belong to this atavistic class of heresies. They may run very deep, lifting the whole fabric of vulgar reason from its center, and reducing it to an illusion. We call them heresies retrospectively, in view of the orthodoxy we have achieved, but in themselves they are a forest of potential orthodoxies, elder rivals to that which public human life has accepted.

Another sort of heresy is peripheral and due to exclusive interest and confidence in some province of orthodoxy. This chosen part—sometimes the part last discovered—is taken for the key to the whole. Such heresy is sectarian. The scout assumes the rôle of the general. Excited by some little fact he has discerned, he shouts back his orders to the whole army, of whose extent and situation he has no notion. Hence the whole plague of little dogmatisms, that would harp universal harmonies on a single string. Yet these philosophies, being founded on the intent perception of something given and loved, are pretty sure to supply a true description, or at least an appropriate symbol, of that particular object. When neutralized by further knowledge and reduced to their proper scope and importance, these sects can contribute their special vista to the orthodox landscape: they can leave, as they retire, a sediment of science.

It would seem that a philosopher should not willingly be either mystical or sectarian. He will inevitably try to explain his mystical experience in the light of his clear knowledge, and so graft his favorite insights and bold hypotheses upon the stem of common sense. He will also wish not to be unfair to any element of the truth. Yet, as things stand, he can hardly remain a mere spokesman of human orthodoxy. That is a body of beliefs and appreciations far too chaotic to satisfy a reflective mind. Must, then, every philosopher, in proportion to the coherence and technical strength of his thought, be a heretic in spite of himself? Not inevitably. I think I see two ways in which philosophy might be achieved without heterodoxy. One is a very hard way indeed, that of comprehensive synthesis; a speculation so evenly inspired and broadly based that it should report the system or the medley of known things without twisting any of them.

Such a philosophy would be to human orthodoxy what the Fathers of the Church were to the Apostles, or the Doctors to the Fathers. This is a feat which no philosopher has accomplished, or is likely ever to succeed in. Those who have attempted it may have been the least deluded of philosophers, but they were also the least philosophical. They have not satisfied the critical mind almost at any point; they have recorded human opinion rather than mastered and deepened it, as a philosopher should. If, on the contrary, the pupil of common sense is masterful and systematic, he is sure to leave, in spite of himself, a large part of human orthodoxy out of account, and to become a sectarian. Aristotle, for instance, who is as normal a philosopher as possible, nevertheless upsets or ignores the whole of genuine physics—certainly half of human knowledge—in respect to which he is a humanist turned metaphysician, and casting the universe in the molds of grammar and ethics. Yet it is this heresy that gives his philosophy its character and its grandeur. A philosopher who was quite conventional and safe in every sphere of knowledge could hardly make such a great impression. He would bleat with the flock, and would be rightly regarded as an amateur in philosophy, like Cicero or Bacon. His eclecticism would remain incoherent, literary, and, as Nietzsche would say, human, all-too-human. Either way, therefore, there is little hope of reaching an orthodox philosophy by the synthetic method.

The other method by which I can imagine a man becoming a philosopher without being a heretic is far more modest, far easier, if only one has a temperament humble and skeptical enough. It lies in confessing that a system of philosophy is a personal work of art which gives a specious unity to some chance vista in the cosmic labyrinth. To confess this is to confess a notorious truth; yet it would be something novel if a philosopher should confess it, and should substitute the pursuit of sincerity for the pursuit of omniscience.

The first requisite of such a philosophy would be to renounce all claim to be a system of the universe. It would leave the theory of the universe to science, to human orthodoxy, or to religious revelation. It would concentrate all its attention on personal experience, personal perspectives, personal ideals. And in expressing these private views, it would not become heretical, or conflict in the least with human orthodoxy; for human orthodoxy does not ignore the fact that men have different sorts of imagination and emotion, that their affections and apprehensions are various, and that they do not approach even those points on which they agree by the same paths. A philosopher setting forth his cognitive and moral experience in his own way would, therefore, not be more heterodox than a poet with

an original vision, so long as he abstained from regarding so interesting an idiosyncrasy as the measure of all things.

Several great philosophers, like Socrates and Hume, have come very near to avoiding heresy after this fashion. But they have not quite avoided it, for they have assigned to their introspection a public value which it did not have, and have denied the validity of some of the sciences, or of all of them. Had they reported ingenuously what they perceived (as sometimes they affected to do), had the psychology of Hume not been malicious or the ethics of Socrates intolerant, all their profound radicalism might have left them orthodox. If given out for merely personal perspectives, all skepticism, all transcendentalism, all possible moral ideals, might be taken up into the life of reason. If the inevitable play and normal illusions of the senses continue to interest the artist without confusing his practical and scientific knowledge, why should the normal illusions of partial acquaintance with things, and the inevitable play of private interests, confuse a philosopher about the nature of the great world beyond?

I am well aware that this mode of avoiding heresy, by living in one's own house, while leaving the universe to manage its own affairs, is something repugnant to philosophers. They crave totality in their views and authority in their sentiments. Nevertheless, their views have no totality. They touch the hem of nature's garment, as science does; and if science feels some virtue pass into it at that contact, it can not fathom the source of that influence, nor map out the realities that may lie beyond. How should a complete chart of the universe descend into the twilight of an animal mind, served by quite special senses, swayed by profound passions, subject to the epidemic delusions of the race, and lost in the perhaps infinite world that bred it? And the moral sentiments of philosophers, however worthy of respect they may be for their sincerity or for their humanity (or in exceptional cases, for both) have no authority. Vehement as they may be, no other man's sentiment is obliged to conform to them. Their sense of value is a fact, it is a fact interesting to the historian, and fundamental in their own ethics; but in the life of nature it is a peripheral thing, a surface phenomenon, the expression of a profound subterranean ferment; and while nothing could be of greater moment in poetry or politics, nothing could be a worse or more heretical foundation for a system of physics, or even for a theory of human society.

If, however, by way of exception, a philosophical heresy could lose its venom and recognize that it was a myth, a graphic way of rendering and lighting up some group of facts or observations, lending them a certain specious unity and rhythm,—then the greatest incentive to envenomed heresy would be removed in minds of an

opposite cast. For heresy is often stimulated by the hatred of error, if not by the love of truth. It arises very largely by reaction against other heresies. A man sees how false another man's system is in some particular by which he himself happens to be otherwise impressed; and he hastens, in his hatred of error at that particular point, to construct a system contradicting his opponent there, while perhaps following him in everything else. But as the critic is conscious of being a purist in this one place, and exposing a fable, he never suspects that what he has not examined, but retained, and even what he has substituted, may be fabulous as well. Proud of being a radical, he can not imagine that he is a dupe. But if his opponent had presented his objectionable view as a personal impression, as the expression of a private experience by which the divergent experiences of other people were in no way denied or rebuked, the spur to lie for the pleasure of giving the lie to others would never prick him, and the self-expression of his own mind might proceed in sincerity, in peace, and in good humor.

Such are the hazards of human opinion and such the possibilities of an orthodox philosophy, as I conceive that human orthodoxy would itself represent them. There is, however, a well-known philosophy of philosophy that would discard all these distinctions. It would maintain that human thought was an absolute thing, that it existed and developed on its own internal principles and resources, without any environment. What this philosophy starts from and calls knowledge is, according to its description, not knowledge at all, but only absolute imagination, a self-generated experience expressing no prior existence and regarding no external object, either material or ideal. Such absolute imagination, since its development could not be affected by anything outside (there being nothing outside), would evidently require all those variations and ingredients which I have called heresies; they would all express its initial pregnancy more or less completely, and would be taken up and carried on in the next phase of its life. All the parts of orthodoxy might thus, in isolation, be called heretical, while the sum total and infinite life of heresy would be orthodoxy, or rather would be reality itself. We are in a world of romantic soliloquy, peopled by subjective lights and subjective assurances; and it is easy to see how well such a discovery might serve Protestant theologians to justify their past and idealize their future.

This assimilation of heresy and orthodoxy would be harmless enough if it confessed that it was merely the composition of an historical artist, the autobiography, as it were, of a groping speculation that likes to imagine itself to be the whole life and experience of a solitary god. An interesting cross vista of the world may be thus opened up, as by an egotistical poet; and if we are more interested in

ourselves than in things, we may well be delighted with such a synthesis of our experiences and of our preferences, as if these made up the sum of existence.

From this point of view, which some modern idealists identify with philosophic method, it is evident that Columbus brought America into existence by bringing it into consciousness, and that geography in general can not express the disposition of the earth's surface, but only the disposition or will of certain spirits to cultivate geography. Similarly, mathematics would lack an articulate and eternal subject-matter. It would not describe the essential relations of ideal terms, about which insight must always be insight and confusion confusion. No: it would rather, at each stage of its history, express the genius of a race, a state of society, and an individual, in expressing which no error is ever possible, since the will to square the circle can not misrepresent itself, but perfectly displays the vital impulse, singular and precious, of somebody in some place and at some moment. What superficial people call madness would thus have nothing wasteful and tragic about it. It would give the exact measure of life in one of its most intimate outflowings. If you rashly took the madness out of people, perhaps they might have nothing left that they could call their own. Nay, universal reason itself would have nothing to work upon.

This romantic philosophy of philosophy is itself a good instance of heresy, both mystical and sectarian. The idealist takes the subjective point of view because he likes it, because his doubts or his dogmas are in that way dissolved deliciously; and that is legitimate. He adds, however, that this subjective point of view is the only right and ultimate one, which is a sectarian heresy; and that it opens to him the substance and the plan of the universe, which is a heresy of the mystical and atavistic kind. As becomes a heretic, he is rather fierce about all this, and rather persistent; but in the long run he can not prevent the world from retaining its happy orthodoxy, and putting him and his private persuasions where they belong.

Indeed, the paradox that human thought is absolute, and therefore neither true nor false, neither orthodox nor heretical, is so extraordinary that many who call themselves idealists are far from maintaining it in its purity. They might practically admit what the unphilosophical imagine, that madness creates images that are personal, temporary, and useless; that geography studies an earth that existed before all geographers, and brought them forth; that mathematics describes ideal objects which are eternal and impersonal. All this they might admit under cover of the doctrine that the whole truth is already present to the mind of God, parts of the same being revealed to us *seriatim*, as our knowledge increases. Truth would

here be the logician's substitute for reality, and the mind of God the psychologist's substitute for the truth. The external standards of orthodoxy, under these idealistic names, would in either case be restored. We should need only to ask what this truth described, or what this mind of God thought about, to behold the natural, historical, and mathematical worlds reinstated, as every one instinctively believes them to subsist. Opinions would no longer have a share in the truth simply because they had a place in evolution. Madness would again be madness, error error, and heresy heresy. We should cease to hear of the absolute life of thought, in which everything was thoroughly significant and thoroughly pathological. Knowledge might really advance and accumulate, because there would be a world for it to discover, and progress might be real just because, in view of its fixed and natural goal, it would not be inevitable, constant, or endless. The naturalistic conception of what philosophy is and can be, of how it strays and how it is tested, would then be restored by general consent, as indeed it should be; for it is the plain deliverance of a long and general experience.

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IS MATHEMATICAL CERTAINTY ABSOLUTE?

THE place where most people would look for absolute certainty is in pure mathematics or logic. Indeed, "mathematical certainty" has become a byword. Now, just as Aristides was ostracized because people were tired of hearing him called "The Just" so much, so we become somewhat suspicious of the absolute certainty of mathematics through hearing it continually dwelt upon. Is, then, mathematics absolutely certain? To answer this question we must first consider a few points concerning the nature of pure mathematics.

Pure mathematics (or logic, which is merely the same discipline under another name) is defined by Mr. Russell as "the science whose propositions contain no constants." That is, all the "things" about which logic and mathematics seem to assert specific propositions—the truth-values, universes of discourse, classes, syllogisms, etc., with which logic deals, and the numbers, integral, fractional, real, and complex which form the subject-matter of arithmetic and algebra, the points, lines, and planes of geometry, and the functions, definite integrals, etc., of analysis—are mere constructions, made to help us express and explain what certain sorts of propositions have in common, and not at all things of the real world. According to Professor Frege and Mr. Russell, a proposition such as "two plus two equals four" does not really involve such objects as two or four might be

supposed to be, but merely asserts that if one considers a property that belongs to a thing a , and another thing b , distinct from a , and to nothing else, and another property that belongs to a thing c , and another thing d , distinct from c , and to nothing else, then the property consisting of the disjunction of these two properties is possessed by objects which we may term m , n , o , and p , which are all distinct from one another, and if it be possessed by an object x , then x is either m , n , o , or p .

But even if the things with which mathematics deals are fictions, it must be admitted that we can handle these fictions without knowing how they are put together. The average mathematician neither knows, nor, I grieve to say, cares, what a number is. You may say if you like that his analysis is blunted and his work rendered unrigorous by this deficiency, but the fact remains that not only can he attain to a very great degree of comprehension of his subject, but he can make advances in it, and discover mathematical laws previously unknown. The whole logical analysis of the concept of number scarcely dates back forty years, yet the first mathematical use of numbers is lost in prehistoric antiquity.

Now, if mathematics is essentially the science of propositions involving no constants, how is it that there were mathematicians before Frege? How is it that mankind was able to handle the notion of number for myriads of years with hardly the ghost of an idea of what a number was? It is almost infinitely improbable, as one sees at once from the illustration given above, that we have Frege's notion of number before we study Frege's work, for it is so unfamiliar to us when we first learn it, and it can not be argued that since Frege's numbers have the formal properties of our every-day numbers they are identical with them, for a little reflection will convince us that on the basis of Frege's and Mr. Russell's own work, we can produce other constructions different from those to which they give the name of number, yet having formal properties which, as far as we are interested in them from the standpoint of a definition of number, are identical with those of Frege's numbers, and that it will be, in general, impossible to say that one of these constructions more truly represents the proper analysis of our naïve notion of number than another, for all of them will seem almost equally unfamiliar to us when we first become acquainted with them. With regard to the ordinary integers with which elementary arithmetic deals, for example, it is even impossible to say whether, in the strict mathematical sense of the word, they are ordinal or cardinal numbers—that is, whether or not they imply an arrangement of the collections of objects to which they refer.

We can not, then, regard naïve mathematics, whether it be the

naïve mathematics of a schoolboy or of a Leibniz, as merely a less explicit statement of what the modern analyst expresses with the aid of his involved technique and symbolism: whence, then, does it draw what certainty it possesses? Perhaps I can explain this best by reminding the reader of an experience which very many people must have had while they were learning mathematics. Every one, or almost every one, at any rate, must remember what agony his first lessons in geometry gave him when he was a schoolboy. The theorems seemed obvious enough to him, but how on earth, he probably wondered, can one get the theorems out of the axioms? No doubt, he thought to himself, two straight angles are always equal, but how is it that one is justified in proving it by superposing one on the other? The axioms did not tell him just when he could superpose one figure on another and when he could not. On the other hand, if he were to go by common sense, and not by his axioms, in proving his theorems, how did it happen, he must have puzzled, that he was not allowed to make use of such eminently sensible methods of proof as measuring the lengths of the lines occurring in his figures, determining the perimeter of a circle by rolling it along a straight line, etc.? After several months' practise in geometry, however, although he was still unable to give a formulation of the principles by which he worked which would satisfy the demand for rigor of the modern student of the axioms of geometry, he ceased to ask these questions, yet seldom went wrong in his geometrical reasonings. He used proofs involving superposition where, and only where, they led to valid results, and never tried to solve a problem by measuring his lines and angles, or by rolling a circle along a line. In short, although he was by no means able to analyze his geometrical proofs in detail, he had formed *habits* of handling the ideas of geometry which, as the time went on, became less and less likely to lead him astray. It was in the uniformity of these habits that all the certainty of his geometrical demonstrations lay—at any rate, until he had begun to correlate his geometry with arithmetic or logic—and the postulates and axioms of geometry served merely to help him fix these habits and render them uniform. As it was by no means impossible that these habits should have broken down in some particular instance—though, after he had studied geometry for years, it was extremely unlikely—the certainty of his geometrical demonstrations was not absolute.

Now, it is not merely in the schoolboy's study of geometry that habit plays a large part: the life of every branch of mathematics lies in a habit. Let us suppose the schoolboy of the previous example replaced by a practised mathematician, and the garbled collection of so-called "axioms" which form the introduction to most school geometries replaced by a genuine set of postulates, made as rigorous

as any yet devised. How is the mathematician ever to apply his postulates to one another? His postulates themselves can not tell him how they should be applied, for then he would have to make a proposition form a part of its own subject-matter, and he would be involved in vicious circle paradoxes. He can not solve the problem by merely adjoining new postulates to his set, telling us how to use the old ones, for either he has still the problem before him, how is he to use these new postulates, or he has an infinite regress of postulates, each depending for the rule by which it is to be applied on the preceding one. The only alternative which seems to me really open is that he should apply his postulates to one another in some way, the uniformity of which is secured by the fact that he has got the habit of handling certain sorts of combinations of symbols and of ideas in a certain manner. He feels instinctively, as it were, that here one can substitute this term for that, there one can leave off that parenthesis, etc. And this habit of using his symbols and compounding his ideas in such a way as to produce the results which other mathematicians have produced, and of obtaining new propositions in a certain determinate manner, is so ingrained in him and so uniform that the chances of his being led to deduce different and conflicting theorems from the same premises are very nearly *nil*.

Yet that these chances are not necessarily entirely absent is best shown by the fact that in many cases, where mathematicians had uniformly deduced certain conclusions from certain premises for, perhaps, centuries, great mathematicians have been able to change deliberately the habits with which they drew conclusions from these premises, and to deduce an absolutely different set of consequences from the original postulates, conflicting with the former conclusions, by bringing to expression as an additional postulate part of what was latent in the original habit, and contradicting it. This is the way the non-Euclidean geometries were first discovered, and the way that, after them, a whole family of systems such as finite spaces, non-Archimedean geometries, etc., have been constructed. This is the way negative numbers, fractions, irrational numbers, and complex numbers were first introduced. Now, although it perhaps never happened before the recognition of the axiom of parallels that a mathematician ever introduced a proposition only true in non-Euclidean geometry in a chain of reasonings about Euclidean geometry, it is by no means certain on *a priori* grounds that such a slip could not have occurred. Therefore, the demonstrations in geometry before the days of non-Euclidean geometry were only relatively certain.

Some of the mathematicians among my readers will object, in all probability, that our habits of geometrical reasoning are now absolutely determined, because the sets of postulates recently set up for

geometry are what is called *perfect* or *categorical*: that is, that any new postulate, involving no non-geometrical notions, adjoined to the set, would either be a consequence of the other propositions of the set, or would contradict them. This is perfectly true, as far as it goes, but to understand its implications we must ask, how does one prove it? and what does it mean? Now, the simplest of the modern ways of defining a system as geometrical is by expressing all the notions involved by it in terms of some fundamental relation, and stating certain limiting propositions about this. These defining propositions are of such a sort as to hold of all relations which are what is called *similar* to any given relation about which they hold. A set of defining propositions, or postulates is then perfect, if no proposition which will apply to any relation similar to R if it applies to R , and which will still further limit the class of relations to which the set applies, can be asserted.

It will be seen, then, that to prove the perfectness of a set of postulates of, say, geometry, we already need a theory of relations, which will, among other things, explain the notion of similarity, and that the certainty of the perfectness of the set, on which depends our knowledge that our way of compounding the postulates of the set needs no habit to make it unambiguous, is itself dependent on the certainty of the formal calculus of relations. Moreover, if one deduces the theorems of the relational calculus directly or indirectly from certain premises, one can not claim, without arguing in a vicious circle, that he can prove that these premises form a perfect set, and that therefore our habits of using them can not be ambiguous.

Yet the theory of relations, like every mathematical theory, must be grounded either in postulates or in some other mathematical theory. The best foundation which has yet been given for it is that expounded in the "Principia Mathematica" of Dr. Whitehead and Mr. Russell. In this work, the theory of relations is deduced indirectly from certain postulates about propositions and "propositional functions" or concepts. The first postulate stated by Mr. Russell is very interesting in this connection: it says, "Any proposition implied by a true proposition is itself true." Unlike most of its successors, this is stated in words, and not in symbols. This fact is not without importance. Mr. Russell intends to use this proposition to justify himself in leaving off a true hypothesis from an implication. Now, if the proposition justifying this appeared in a tangible form as a premise in such a case, we should need to assume it a second time to justify its elimination in its first occurrence, and so on *in infinitum*. We should never, that is, be able to make a single deduction, for we could never separate a conclusion from its premises. We must be able to drop true premises in a definite manner, and this first

postulate of Mr. Russell's is expressed in words, and not in symbols in recognition of the fact that, while this is the case, our power of doing so resides, not in the formulæ of logic themselves, but in our habit of using them. Now it is not only possible, but highly probable, that there are habits in accordance with which we might deduce different results from Mr. Russell's postulates, and possible, but almost infinitely improbable, that we might at any time mistake one of these habits for the proper one. It seems also possible to me that this chance of uncertainty might be reduced to any desired degree by the insertion of new postulates in Mr. Russell's system defining the mode of application of the previous ones. The negation of these would lead to non-Russellian logics much as the negation of the postulate of parallels leads one to non-Euclidean geometries. It appears to me unlikely that such an amplification of Mr. Russell's set of postulates would ever render it possible for us to prove that no further ambiguities in the habits according to which we use these postulates would be possible.

Apparently, then, it is in any case highly probable that we can get no certainty that is absolute in the propositions of logic and mathematics, at any rate in those that derive their vailidity from the postulates of logic. But are not the postulates themselves absolutely certain? Is there any conceivable room for uncertainty in the law of contradiction, or in the other axioms of logic? It appears to me that even here dogmatism is not the proper position to maintain. It seems a just maxim that we can not be absolutely sure that a proposition is true until we have a perfectly adequate knowledge of what it says—such a statement as, "Abracadabra, and I am sure of it" remains pure nonsense until one knows definitely what is meant by "Abracadabra," while even when we come to the relatively definite propositions of physics, such as the law of the conservation of energy, one of the chief sources of doubt as to their absolute validity is, in many cases, our lack of certainty as to what they really assert. Now, such "laws of thought" as the law of contradiction, or the law of identity, have already undergone a considerable change in their meaning on account of the analysis to which the new mathematical logic has subjected them—the law of contradiction, "Everything is either A or *not-A*," has been rendered a rather late inference in the "*Principia Mathematica*," limited in its meaning by the theory of types, and not derivable from any single one of the set of postulates there given. The law of identity has been shown to be a consequence of the definition of identity, which requires an elaborate logic for its very formulation. Even if one accepts " p is true or false" as the same proposition as the law of contradiction and " p is equivalent to p " as the law of identity, these may come in at a stage when the theory

of propositions has already reached a high level of development, if we accept Sheffer's analysis of the calculus of propositions, and it is by no means inconceivable that this should make a certain difference in their complete meanings. Moreover, it is not impossible that the notion of a "proposition," in the sense in which this word is used in the "Principia," may itself be capable of analysis in terms of some more simple notion—it is part of mathematical and logical progress not only that our sets of postulates should be rendered more precise by the adjunction of new postulates, but that the "habit" by which we use a set of postulates pertaining to a certain mathematical or logical system we use should be made more unambiguous by the reference of the system as a whole to a finer system, which gives us a smaller opportunity for ambiguity in the habit by which we use its postulates, as a center of orientation, as it were. There is no need, then, of supposing that even the axioms of the "Principia" or any similar set we shall ever come to are not subject to further analysis, and that we have an absolutely adequate knowledge of the meaning of any logical proposition whatever. Hence, although our degree of uncertainty in logic is so infinitesimal as not to enter at all in the allowance we make for error in our scientific reasonings, we have no reason to suppose it is altogether absent.

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A STUDY OF AN IMAGERY TEST

IN Dr. Mabel Fernald's monograph, "The Diagnosis of Mental Imagery," the following test is described. Long words, such as somnambulist, symmetrical, etc., were pronounced to subjects who were then required to spell them backwards orally, and to report upon the process, noting especially any imagery which appeared to help in the performance of the task. The time taken to spell the word was noted on a stop-watch. Dr. Fernald writes:

"In general, we seem justified in saying that the results indicate that the rapidity of this form of spelling is favored by the ability to summon clear, vivid, and stable visual images of the words without a very great need for accessory factors. . . . We can not rely upon this as a purely objective test, since it would lead us into many errors of diagnosis. As a partially objective test, however, lending confirmation to the reports of the subjects, it would seem to be of greater value."

This test, though similar in principle to the Binet letter squares in which letters must be learned in a given position and then reproduced in some other designated order, and though it is also like the

Binet eight-year-old intelligence test which requires the subject to count backwards from twenty, has an advantage over these two. Fernald's test uses material which is already mastered in its original form, i. e., the forward spelling of the word, and which is available in large quantities, so that the subject's reaction can be taken repeatedly. However, in a recent paper, Dr. Clara H. Town has called in question the validity of the test, on the basis of an experiment which she made upon six blind and six seeing persons. She says: "The tests in question have little or no value as objective tests for determining the use of visual imagery by a given individual."

A reliable diagnostic test of imagery seems to the present writer very important from a pedagogical point of view. A teacher needs to know the mental traits of the children with whom he deals, and children themselves may with profit be made aware of their own mental habits and of the changes which they might make in them. Hence it seemed worth while to gather more data on this test. I tried it with twenty-five adults and twenty-five children. The adults were all women, most of them college students between twenty and twenty-five years of age. The children were all girls between the ages of ten and twelve.

To adapt the test to these children shorter words were used than those in Fernald's list, and in order to cut down the rather large variations which she got, words of equal length were given. The first series consisted, then, of these fifteen words: *family, return, church, person, finger, pounds, handle, before, honest, figure, bundle, glance, always, pretty, custom*. Though these words are equal in length they proved to be somewhat variable in difficulty. The middle reading for the adults ranges from 4 seconds for the word *pretty* to 5.8 seconds for the word *church*. For the children the range lies between 6.4 seconds for *person* and 9.2 seconds for *custom*. The order of difficulty is not the same for adults and children, the correlation between the two orders being $+ .36$. A second series was also tried, containing fifteen words of nine letters each, as follows: *following, constancy, treatment, carpenter, different, respected, fifteenth, gentleman, everybody, separated, intensity, merchants, sometimes, daughters, Wednesday*. In cases where the words were unfamiliar to the children certain substitutes were given. These were, *beautiful, contained, selection, and relations*. I have not computed the relative difficulty of these words, but they, like the short list, would undoubtedly show differences, and I think this test would be much improved by choosing words from a standardized list such as Ayres has now published in "A Measuring Scale for Ability in Spelling."

At the beginning of each test the subject spelled a few preliminary words backwards and was questioned as to how she went about the task. The attempt was made to elicit spontaneous and circumstantial comments upon the imagery, and to avoid suggesting particular kinds of imagery. The reliability of the children's reports may seem especially open to question. My plan was, from my previous knowledge of these children and from preliminary questioning, to hazard a guess as to the child's imagery, and then to see whether she would make a statement and hold to it in the face of a contrary suggestion. This I found that they would often do. For example, to one whom I believed to have little visual imagery I said, "Do you seem to see the word?" She said "No I don't see it at all; I think it." "Don't you see it as if it were written or printed out?" "No, I just think it—like a voice." If I made a wrong guess and the child agreed with my suggestion, I then tried to get some detail about the image which should seem to mark it as genuine. For instance, I asked one child about her sound images, whose voice they were like. She answered, "Why it's a mixture of mother's voice and mine." Answers like that I take to be genuine. Judging, then, partly by the child's assured statement, partly by the spontaneity and naïveté of the statement, and partly by incidental signs, as when I heard the whispered spelling of the word forwards, or saw the child writing in the air with her hand, I felt some confidence in the accuracy of the children's introspections.

The kinds of imagery noted are designated as follows:

Vis. whole. Some persons were able to apprehend the word as a whole picture, and to spell it off as if reading the letters backwards from a printed page. They were not aware of depending on other cues.

Vis. part. Subjects reported fragmentary visual imagery of words. Sometimes it appeared syllable by syllable, sometimes in arbitrary groups, occasionally even letter by letter. Under this rubric are included those, also, who used visual imagery, but who did not see the word certainly as a whole.

Mixed. Those subjects are here counted as mixed in type, *a*, who use some visual images, but who change cues from word to word, *b*, who for each word use a combination of cues including the visual. Among them are certain cases in which the subject depends upon a visual image, but finds it necessary to pronounce the word in order to summon the picture.

Doubtful. Cases in which the subject could give no conclusive account, and cases in which I could not be sure that she was not influenced by the form of my question, are recorded as *d*.

Aud. and *art.* refer to those who used characteristically auditory or articulatory images.

Gr. mot. means grapho-motor, and the class *non-vis.* is used to cover the cases in which the subject could not specify her method further than by saying that it was certainly not visual. This term is not, therefore, exclusive of auditory, articulatory, etc., cases.

The distribution of the subjects among these imagery classes is as follows in Table I.

TABLE I

		Vis. Whole	Vis. Part	Mixed	D.	Aud.	Art.	Gr. Mot.	Non-vis.
Short words.	Adults.....	8	4	7	0	0	2	0	4
	Children.	5	4	3	3	2	6	1	1
Long words.	Adults.....	4	5	5	6	0	2	0	3
	Children.	2	2	3	5	2	5	1	1

The distribution of subjects according to speed is given in Table II. The time was noted on a stop-watch. The median of the fifteen reactions gives the subject her rank. Thus the number 9, Table II., means that there were nine adults whose median reactions took from three seconds up to (but exclusive of) four seconds.

TABLE II

Time	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	...	22	23	...	31
Ad...	0	9	7	4	2	2	1	0	0	0									...				
Ch...	0	0	1	1	4	5	5	4	2	0	1	0	0	1	0	0	0	0	.....	.....	1		
Ad...	0	0	0	3	5	4	4	2	0	2	0	2	0	0	3				.....			
Ch...	...	...	...	...	...	...	...	2	3	5	0	2	2	0	3	0	1	.....	1	.....	.....	1	

The children here show a normal distribution, whereas the curve for the adults is skewed to the left in the short series. Reference to the preceding table shows that whereas the visual and the non-visual methods are fairly evenly distributed among the children, the visual methods clearly outweigh the non-visual among the adults. In other words the visual image seems to go with the better speed. The factor of age might account for the absolute differences in speed, but it can not with certainty be made to account for the form of the distribution.

Table III. gives the median in seconds with its probable error for each subject, the type of imagery characteristic of the subject in this test, and the number of errors for the whole series. Table III. gives the records for the short words, Table IV. for the long words.

TABLE III

Adults					Children				
Subject	M	P. E.	Imagery	Errors	Subject	M	P. E.	Imagery	Errors
1	3	.6	vis. whole	0	1	4	1.2	vis. whole	0
2	3	.8	vis. whole	5	2	5	1	mixed	0
3	3.2	.4	vis. whole	0	3	6	1	aud.	3
4	3.2	.6	art.	0	4	6	1	vis. whole	1
5	3.4	.4	vis. whole	0	5	6.4	1.4	art.	0
6	3.6	.4	non-vis.	0	6	6.4	1.4	vis. whole	1
7	3.6	.6	vis. whole	0	7	7	1	d.	3
8	3.8	.6	vis. whole	2	8	7	1.2	art.	3
9	3.8	.6	mixed	0	9	7	1.3	vis. whole	0
10	4	.6	mixed	2	10	7.2	2	non-vis.	0
11	4.2	.6	vis. whole	0	11	7.6	1.2	vis. part	2
12	4.4	.8	non-vis.	1	12	8	1.2	vis. whole	2
13	4.6	.6	mixed	1	13	8	1.4	mixed	3
14	4.8	.6	mixed	0	14	8	2.4	d.	0
15	4.8	.8	vis. whole	0	15	8.2	3	vis. part	5
16	4.8	.8	vis. part	2	16	8.6	2.4	d.	0
17	5	.4	mixed	0	17	9	1.4	vis. part	1
18	5.2	1.2	mixed	2	18	9.2	.2	art.	3
19	5.4	.6	vis. part	1	19	9.2	3.2	art.	7
20	5.6	.6	vis. part	2	20	9.4	2	vis. part	1
21	6.4	1.4	mixed	1	21	10	1	gr. mot.	1
22	6.6	1.2	non-vis.	2	22	10	1.6	art.	1
23	7	.6	vis. part	1	23	12	2.6	aud.	5
24	7	1	art.	1	24	15.8	2	art.	1
25	8.2	2.4	non-vis.	7	25	23.4	12.6	mixed	11

TABLE IV

Adults					Children				
Subject	M	P. E.	Imagery	Errors	Subject	M	P. E.	Imagery	Errors
1	5.4	.6	vis. whole	1	6	10.2	1.2	vis. whole	3
6	5.6	.6	non-vis.	2	1	10.6	4	vis. whole	0
5	5.8	.8	vis. whole	0	2	11	3.2	mixed.	1
7	6	.6	d.	1	11	11.2	2.4	d.	2
9	6	1.4	mixed	0	5	11.8	2.2	art.	1
4	6.4	.8	art.	1	7	12	1.4	mixed	0
8	6.4	.8	vis. whole	5	3	12	1.4	aud.	0
3	6.6	1.4	vis. part	1	9	12.2	1.4	vis. part	0
11	7	1	vis. part	0	10	12.2	2.8	non-vis.	5
15	7	1.2	vis. whole	0	16	12.6	2	d.	1
2	7	1.4	mixed	5	4	14.2	3.4	vis. part	0
10	7	1.8	mixed	0	14	14.4	4	d.	3
12	8	1.2	d.	1	18	15	1.6	art.	1
14	8	1.8	mixed	2	8	15	3	art.	2
16	8.6	1.4	vis. part	0	21	17	2	gr. mot.	0
17	8.8	1.4	mixed	1	23	17.2	2.8	aud.	3
19	9.6	1	vis. part	3	22	17.4	4	art.	5
13	9.8	1.8	vis. part	3	20	19	2.8	mixed	5
21	11	3	d.	3	15	22.2	5.2	d.	7
20	11	3.6	d.	3	24	31.6	7.6	art.	4
18	13	3.2	d.	3	17	31.8	12.4	d.	2
24	13.2	2.6	art.	0					
22	16	1.8	non-vis.	2					
23	16	3.6	d.	3					
25	16.4	5.4	non-vis.	5					

From these tables it appears that with short words the middle reading for adults who use whole visual images is 3.5 seconds; P.E. .4; for those who use other forms (treating them as one class) 5 seconds P.E. 1. For children who use whole visual images the figures are 6.4 seconds, P.E. .6, and for the others 8.4 P.E. 1.3.

The long words give for the adults, vis. whole 6.1, P.E. .5, others, 8.6, P.E. 2.2. For children vis. whole 10.4, P.E. 4; and others 15, P.E. 2.8.

The average errors are, with short words, for adults vis. whole .8; others 1.35; for children vis. whole .8; others 2.5. With long words, adults, vis. whole 1.5; others 1.8. Children vis. whole 1.5; others 2.2. Thus there is an advantage throughout in favor of the vis. whole group. Those who use fragmentary visual imagery seem to be no better off than the non-visualizers.

The Effect of Practise. The medians of the first five, the middle five, and the last five reactions were noted for each subject. The result is that no clear practise effect is discernible. Of the adults in the short series 10 grew worse, 4 remained the same, and 11 grew slightly better. Of the children 18 grew slightly worse, 2 remained the same, and 5 improved slightly. In the long series 12 adults improved and 13 deteriorated, 10 children improved and 11 deteriorated. The changes were slight and in general are smaller than the probable error. This result speaks in favor of the usefulness of the test, as it is not likely to be vitiated by the fact that many children play games or use codes in which spelling backwards is a feature.

Conclusion. It is desirable that the test be tried with more subjects, including men and boys, and also with a list of more perfectly standardized words. The present results seem to me to support Dr. Fernald's estimate of the test as quoted above. Dr. Town's method may account for the difference in her results. In her report she uses "seeing subjects" as the equivalent of "visualizers." The assumption that all seeing persons use visual imagery in a test like this is entirely unwarranted, and it makes Dr. Town's results quite meaningless, it seems to me, so far as the imagery problem is concerned. It should be said, finally, that although this test may prove to be a useful accessory in classifying persons according to their imagery, yet it does not indicate that a person belongs to such and such a general imagery type. In other words a person may be a visualizer in the kind of performance which the test represents, but may be something different in other enterprises.

KATE GORDON.

REVIEWS AND ABSTRACTS OF LITERATURE

The Philosophy of Giambattista Vico. BENEDETTO CROCE. Tr. R. B. Collingwood. New York: The Macmillan Company. 1913. Pp. xii + 317.

The effort of Croce to create a place for Vico in the history of philosophy can be understood on two grounds: a patriotic devotion to Italian culture and the feeling of a certain like-mindedness whereby Croce sees in Vico a forerunner of his own thought. But the way of the patriot is hard, for, in his own day "at most, Vico acquired the reputation of a scholar amongst hundreds of scholars, a man of letters among thousands of similar men; a learned man but nothing more" (p. 261), and in spite of Croce's best efforts to find traces of his thought in later centuries the results are most meager. On the other hand, the like-mindedness between Croce and Vico is real, often in defects as well as in merits. Both lack the architectonic sense that makes constructive exposition possible and both indulge in a loose use of terms that is the despair of an exact student. Yet both exhibit a certain acuteness of large-scale vision that makes their thought, after all, worth while.

Croce's exposition "is not meant for a summary of Vico's writings work by work and part by part" (p. vii). It is rather an evaluation of Vico's thought and might well be entitled, after the analogy of one of Croce's other writings, "The Truth in Vico."

The first two chapters are devoted to the theory of knowledge. This theory arose in direct opposition to Cartesianism. Clear and distinct perception is not the criterion of truth, but rather "the condition under which a thing can be known is that the knower should have made it, that the true is identical with the created: *verum ipsum factum*" (p. 5), from which it follows that God alone possesses science, man only consciousness; and metaphysics, theology, and physics are depreciated. Most striking is the limitation imposed upon mathematics by this point of view." From metaphysics, geometry takes the point by drawing it, that is, by annihilating it as a point, and arithmetic the unit by multiplying it, that is, by destroying it *quâ* unit. But since metaphysical truth, however certain it may seem to consciousness, is indemonstrable, mathematics itself rests in the last resort upon authority and probability" (p. 12). Therefore, mathematics as derived from metaphysics, can not be a basis of other sciences, although they follow it in order of derivation. From this we are led to the astounding conclusions that science has never made any discoveries through the mathematical method, while without it all goes well.

However, Catholic faith, acquaintance with the moral sciences, and the study of law worked together to lead Vico to modify these conclusions on the basis of his theory of knowledge. Man can know his social world because he has made that world. But in mathematics, as in moral science, it is a question of dealing with man's own creations, of placing facts in ideal constructions, and the mathematical method is reinstated as

a method of value to morality. In Vico's hands, however, facts suffer under the method of ideal construction, and for the rest of his philosophy we find gaps filled with pseudo-facts established by "metaphysical proofs," or uncertainties made certainties because of mere conformity to some assumed principle, to an extent that greatly detracts from our appreciation of the *New Science*.

Croce is at great pains to prepare his reader for the defective character of this work, with its violence to facts and confusions of philosophic, scientific, and historic methods (p. 42). The faults, he tells us, are those "often found in highly original and inventive intellects, which seldom work out their discoveries in accurate detail, while less inventive minds are generally more precise and logical," a romantic touch which the history of philosophy hardly bears out, however true it may be in literature. As a canon of interpretation necessitated by Vico's "tendency to confusion or his confusion of tendencies (!)," Croce proposes the analytic separation of his philosophy from the other elements with which it is bound up, a task, however, that proves somewhat baffling even to our author's great learning and skill.

The last two chapters of the book deal with Vico in relation to later thought, but, quite properly, the main part is devoted to the social philosophy of which the most striking characteristic and the one that most nearly raises Vico above the level of his age is the conception of society as a growth rather than an invention. In mind we have a process of unfolding, through which the feelings and instincts of brutish men become transformed into the nature of civilized human beings in whose common consciousness of necessities and utilities lies the germs of morality, and in the weakness of whose understanding, the germs of religion. This growing society is then traced somewhat confusedly through the stages of its development under the law of reflux by which civilization comes to an end in the "barbarism of reflection" which is infinitely worse than the "barbarism of sensation" from which it has emerged, and which can only be cured by the dulling of "the evil subtlety of malicious intellect" through long centuries of a new barbarism of sensation, a process strongly suggestive of the Hegelian formula, but, in execution, lacking in disciplined analysis.

There are four appendices dealing with the life and character of Vico, the later history of his thought, the sources of this theory of knowledge, and bibliographical material. In the third of these, Croce defends Vico's originality and replies to certain criticisms, as to his own personal bias and his idealistic interpretation of the Catholic Vico, which had already been made to the Italian edition of his book. Mr. Collingwood's translation is uniformly excellent, indeed, one almost completely loses the sensation that he is reading a translation and not an original work.

HAROLD CHAPMAN BROWN.

JOURNALS AND NEW BOOKS

THE BRITISH JOURNAL OF PSYCHOLOGY. March, 1915.

Perseveration (pp. 387-419): W. LANKES. — The object of the investigation was to contribute something to the questions: (1) Is perseveration a general factor—comparable with general ability, influencing the entire range of mental activity, and therefore of prime importance for a correct conception of the constitution and operation of the human mind? (2) How is perseveration as a peculiarity of the cognitive side of mental life, related to the “perseveration”—qualities of character, *i. e.*, perseverance or persistence of will? The experiments included (1) natural rate of tapping, (2) letter-writing, (3) cancellation, (4) color-disk rotating, (5) drawings, (6) narratives, (7) associative reaction, (8) essays and an interrogatory on perseveration-tendency and estimates of “persistence” qualities of character. All the tests correlate slightly positively among themselves and with the interrogatory. The correlations must be the result of a general factor influencing all the various performances tested by the experiments and by the interrogatory. Perseveration may be claimed as this one common factor. This perseveration does not correlate or correlates negatively with the estimates of “perseveration” qualities of character. The reason given is: perseveration, as tested, “is a native quality of the nervous system, innately different with different individuals. The perseveration or persistence tested by the estimates of qualities of character and behavior is the result, not of nature and the native system alone, but of that and the individual’s own effort and will. The absence of correlation between the two *p*’s proves the independence of innate perseveration and will, and the slightly negative correlations tend to show that the self, with persons used to act morally . . . can modify, and directly counteract, its own nervous system and its innate tendency towards perseveration or the opposite.”

The Formation of Projected Visual Images by Intermittent Retinal Stimulation. I. General Characteristics of the Image (pp. 420-433): GEORGE H. MILES. — After images gradually fade, but if light is allowed to fall intermittently at a suitable rate on the closed eyelids or if the intensity of the illumination of the screen on which the image is projected be varied at a regular rate, the fading and indistinct image is rapidly revived. Experiments have been made to discover the main factors involved in the production of the projected image. “The ‘projected image’ noticed on first directing the eyes to an illuminated surface, appears to owe its revival to the restimulation of previously excited tracts and is also influenced by the excitation of the remainder of the retina and more particularly by the parts bordering on the previously excited area.” In normal conditions the image always follows the voluntary movement of the eye; whereas when the eyeball is displaced by pressure, the image occupies a position which appears located by voluntarily determined direction of attention.

Simultaneous and Successive Association (pp. 434-452): A. WOHLGEMUTH. — The experiments were performed to decide between the claims of the rival theories of simultaneous and successive association. The conclusions are made with reference to the psychological memory only: (1) The more

the members of a group are apperceived as a whole the stronger their association with one another. (2) The theory that the formation of associations is due to the succession of experiences *quâ* succession is not correct. (3) All associations are due to simultaneity, either simultaneity of the experiences, or simultaneity of the succeeding experience with the akoluthic phase of the preceding experience. (4) The simultaneous experience is more favorable for the learning of pairs than the successive experience. (5) In learning pairs no cross-examinations between members of adjacent pairs are formed. *Factors in the Mental Processes of School Children. I. Visual and Auditory Imagery* (pp. 453-490): N. CAREY.—The material used in the research was (1) verbal memory tests, (2) tests of sensory discrimination, (3) tests of sensory memory, (4) tests of general ability, (5) tests designed to involve the use of imagery, (6) estimates of visual and auditory ability from introspections, (7) estimates of scholastic ability according to the results of school examinations, (8) ranks of children according to scholastic intelligence, practical intelligence, painstaking and social status, drawn up by teachers of the school. "The correlations between the different types of imagery are comparatively high; higher than those of imagery with any other performance." Although the "results can not prove that mental activity may take place without visual and auditory imagery, yet they do prove that the clearness of such imagery bears no relation to the effectiveness of the mental processes which it accompanies. It might be argued that the usefulness of imagery depends upon its mere presence. This, however, seems improbable. It is not usual to find that imperfect tools serve so useful a purpose as perfect ones." *Publications recently received. Proceedings of the British Psychological Society.*

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- Cantor, Georg. *Contributions to the Founding of the Theory of Transfinite Numbers*. The Open Court Series of Classics of Science and Philosophy, No. 1. Chicago and London: The Open Court Publishing Company. 1915. Pp. ix + 211. \$1.25.
- DeMorgan, Augustus. *A Budget of Paradoxes*. Second Edition. Edited by David Eugene Smith. 2 Vols. Chicago and London: The Open Court Publishing Company. 1915. Pp. viii + 402 and 387. \$3.50.
- Meinong, A. *Über Möglichkeit und Wahrscheinlichkeit. Beiträge zur Gegenstandstheorie und Erkenntnistheorie*. Leipzig: Verlag von Johann Ambrosius Barth. 1915. Pp. xvi + 760. 19 M.
- Ulrich, John Linck. *Distribution of Effort in Learning in the White Rat*. Behavior Monographs, Volume 2, Number 5. Boston: Henry Holt and Company. 1915. Pp. 51.

NOTES AND NEWS

THROUGH the courtesy of the editors of *The New Republic*¹ we are permitted to reprint the following correspondence.

POLITICAL PHILOSOPHY IN GERMANY

Sir: In his book on "German Philosophy and Politics," Professor Dewey has proposed an original view of what is wrong with the philosophy of the government responsible for the present war. It has been commonly felt that on Germany's part this war has a philosophy behind it, and a bad one. Many of us have been supposing that this philosophy stood in strong contrast with the idealism with which Germany began the nineteenth century. During the time when the present policies of the German government were shaping themselves, the prevalent state of mind was openly hostile to these idealistic teachings, and Germany was listening to leaders who learned far more directly from scientific experience and from the bitter examples of successful statecraft that were at hand, especially in English practise. We thought that Germany had learned these lessons only too well, and with native thoroughness had carried them to extremes at which we, who had in some measure been practising them, were forced to abhor them. As opposed to that early idealism, this philosophy was one which justified expediency as against principle; which had cured the German spirit of the weakness of sympathy and humanity; which had freed itself from the idea of absolute obligation toward treaties or elsewhere, and had become efficiently Darwinian and pragmatic.

In Professor Dewey's eyes we have been making a mistake, and a serious one. The trouble with Germany, he finds, is not in the rejection of its idealists, but in the vestige of their doctrines that it still retains. It is Kant in particular who has misled Germany, by giving a philosophic sanction to a certain native hypocrisy in the national blood which disposes it to revel in the inner flattery of idealistic sentiment while doing what it pleases in the outer world of hard facts. This was not quite foreseen or intended by Kant; but he had set up an absolute principle of duty, so formal and spectral that it could not be said to command anything in particular, and yet one which spurned instruction from experience. Such an absolute law, like the swept and empty house of Scripture, was open to occupancy by any usurping devil; and so Scharnhorst, Hegel, Bernhardt and others trooped in, setting up in the vacant sanctuary "the good of the State" as a concrete object of supreme devotion. Thus the nation has come to use the name and inner unction of the idealist's absolute duty to support the principles of Machiavelli, Frederick, and Bismarck. This result is persuasive to the German mind chiefly because the German mind is disposed to have its absolute; abandon this "traffice in absolute," and the supreme good of the German state fails to impose on belief as an ultimate end; it becomes an end to be tested, like all others, in the crucible of experience. It must break down at last before the higher good, "furtherance of the depth and width of human intercourse." This, as I read it, is Professor Dewey's diagnosis of the German distemper.

¹ See *The New Republic*, Vol. IV., pages 234 ff.

He therefore recommends to American policy a more radical experimentalism; let us have done with absolute or fixed principles, such as "nationality" or "sacred rights"; let us regard everything as subject to test, discussion, measurement, compromise, adjustment, revision. Of course, while we are trying a theory out, we try it as if it were, for the time, worthy of complete confidence, and to become "established," for that is what giving a trial means. And we are forced to inquire whether the German government is not at the present moment faithfully following the experimental prescription: it is trying its own theories to see how they work. It believes firmly that its methods are the methods that succeed; and it believes so not because of anything that Kant taught, but because of the way in which it has recently been interpreting history, led by its series of economic historians from Marx (who precisely inverted Hegel's view of history) to Lamprecht and Schmoller. Perhaps official Germany still expects to find these principles confirmed by a successful issue of the war, and if such should be the case, would Professor Dewey have any argument from the armory of the experimental philosophy against them, as principles suitable for Germans? He might urge that what in such an event would work very well for the victors would work very badly for the victims; and unless a principle works all around, it can not fairly be said to work. But this is exactly the test that Kant uses; it is, in fact, his "absolute law": any maxim, said he, that can be made universal is a good one, any other is a bad one. This law does not indeed prescribe any specific line of conduct; but, as the present instance shows, it would be highly inaccurate to infer that it is of no effect in guiding concrete action, or in distinguishing between a good course and a bad one. Germany's course might be defined as experimentalism without the Kantian corrective.

Upon close scrutiny of Professor Dewey's argument, however, the substance of his criticism seems to be, not that Germany has an absolute, but that it has the wrong absolute. Has he himself done more than to transfer the putative crown of the absolute moral end from "the good of the German state" to "the furtherance of human intercourse"? If it were true that Germany to-day believes in an absolute duty, the trouble would be, on Professor Dewey's showing, only that it gives this absolute too narrow a definition. But this is an error which can certainly find no sanction in the Kantian philosophy. For Kant did in fact try to fill his formally empty house with a maxim identical in effect with that which Dewey proposes: "Treat humanity as an end in itself, and never as a means only." Can any one with the slightest historical justice credit the German government of to-day with following *this* Kantian principle? If this were taken by the government as an absolute of inflexible rule, would there have been any war? And would Professor Dewey have had anything to criticize?

The fact of the matter seems to be that the ruling party in Germany does not at heart believe in any absolute duty. It is radically experimental or pragmatic, which is what *Realpolitik* essentially means. It does indeed go about its work as desperate action always does, with relentless dogmatism and a liberal invocation of the name of God. It flourishes an

absolute: but this absolute is not even verbally of Kantian origin—it has its roots in the ancient piety of Germany, transferred to the historically un-German doctrine of the divinity of the monarch and of the state. But assuming for the moment that this appeal to absolute right had a sidelong reference to Kant or Hegel, is anyone outside of Germany convinced by it that the German government believes in its own language, or is actuated by any idealistic faith? What most of us seem to feel here is rather a discrepancy between the profession and the actual belief exemplified in behavior, a mental dishonesty which can neither be traced to Kant's philosophy nor attributed to the normal character of the German people. And surely we can not fairly judge the character of any philosophy by those who cloak themselves in its phrases without a shadow of faith in its substance.

The issue raised by Professor Dewey is not a slight one. It involves not only the good name of German idealism—which with all its strut and abstraction is worth defense, for we must allow Germany what spiritual asset she still has—it involves also our own American political thinking. The American people is becoming conscious of its need for a political philosophy which expresses its character. Largely through this war the conviction has become strong within us that we have a distinct character, and something to stand for. When Mr. H. G. Wells made the tour of America whose results were published in "The Future of America," he failed to find any such conviction; he said we were "state-blind." This condition of things has come to an end. We have a political character, and are conscious of it. Is it expressed in the philosophy of experimentalism? Our national protests against submarine outrages have been based throughout on the ground of rights that are assumed stable. Experimentalism at this point would rob our national attitude of what punch it has. We need not, and do not, assume in these documents that we know in detail what is absolutely right and good; but we are bound to believe that there is such a thing as principle and right, and that there are certain rules which come so close to embodying it, in the existing cases, that we shall put an inflexible will behind them. They have been experimented with during all previous history, and they have been experimented with enough. We do not propose to experiment further with slavery, nor yet with our main positions upon the "rights of man," though we have much work to do in defining those rights. There can be no doubt that our own experiment in government suffered from an overdose of absolute *a priori* theorems borrowed from England and France (surely not from Germany) in the framing of our constitution. It will take time, as Professor Dewey declares, to weed out this mass and determine what things they are to which we shall hold fast. Here an experimental temper will help us on. It is always easy to be absolute about too much, and the critic of the absolutist is always needful. But this is a far cry from the rejection of all absolutes—that is, of all fixed principle. I should prefer to accept the other side of Professor Dewey's faith, and adopt "the furtherance of human intercourse" as a good beginning toward defining an absolute end.

IN REPLY

Sir: The correctness of my account of the historic development of the German temper of mind is of limited interest compared with the other question which Professor Hocking raises—a question which, as he truly says, concerns our own American political thinking. Shall our political philosophy be experimental, or shall it be *a priori* and absolutistic? My book on “German Philosophy and Politics” was certainly addressed to American, not German readers; it was animated by the hope that it might do something, however slight, to make Americans conscious of the discrepancy which exists between the tenor of our activity and our current theory and phraseology about that activity. To make a specific application, I do not feel easy when I find that, say, the divergence between President Wilson and Mr. Bryan as to the methods of dealing with the present international situation rests upon a common assumption of “immutable principles,” waiting ready-made to be fastened upon the situation; the divergence being that Mr. Wilson, as a lawyer, finds them already embodied in a legal code, and Mr. Bryan, as a sentimental moralist, finds them embodied in the great heart-throbs of an altruistic humanity. I can but think that we should be better off if we had recognized from the beginning that the question was to find out what we really wanted, and what the moving forces of the situation permitted, and how to go intelligently about getting the ends decided, after due deliberation, to be desirable.

But Professor Hocking disagrees. He finds that the matter with us is that we have been too pragmatic, too empirical and experimental, and that the conduct of Germany is an object lesson to us of what that sort of a philosophy leads to; a warning, presumably, to return to some absolute and eternal code—just whose, however, he fails to tell us. And so it appears that the accuracy of my statement of Germany’s mental diathesis is relevant to the issue between us. For Professor Hocking has not grasped my position. I have not said that the behavior of the rulers of Germany was dictated by an idealistic philosophy. I meant (and said) that it was a *Realpolitik*—highly pragmatic if you please. Of course it is; all action as action is pragmatic. But the prevalence of an idealistic philosophy full of talk of Duty, Will, and Ultimate Ideas and Ideals, and of the indwelling of the Absolute in German history for the redeeming of humanity, has disguised from the mass of the German people, upon whose support the policy of the leaders ultimately depends for success, the real nature of the enterprise in which they are engaged. Does Professor Hocking believe that the German people are supporting the war because *they* think it is a measure of “practical expediency”? If so, what and where is his evidence? For myself, while I should hesitate to accept the utterances of representative Germans in the present excitement regarding objective facts, I think they are wholly acceptable evidence regarding their own state of mind. And that state of mind is one which naturally expresses itself by appeal to Kant, the categorical imperative, and the traditional idealism of Germany. Does Professor Hocking deny this? If not, what does he make of it?

What I make of it, I repeat, is not that the Germans are conscious hypocrites, but that in a world where men act pragmatically, it is dangerous to entertain a philosophy which is at odds with the facts of action, since such a philosophy will mask from men the real nature of their activities and encourage them to engage in one kind of action feeling that they have the sanction of ideas of a radically different kind. Yet I recognize that in a society organized as is Germany, class stratifications, and an efficiently organized hierarchy of subordinations, give appeal to *a priori* concepts a certain solid backing. "Immutable principles" are but sublimations of the emotions attending the actual organization of society. There is no such intellectual uncertainty and confusion in a German appeal to an absolute philosophy as there is, inevitably, in its American analogue—which to my ear always has a deplorable thinness and unreality.

Let it not be thought that to admit—or rather assert—that German action is pragmatic and experimental is to give away the case. What is at issue is the difference between an activity which is aware of its own character, which knows what it is about, which faces the consequences of its activities and accepts responsibility for them, and an activity which disguises its nature to the collective consciousness by appeal to eternal principles and the eulogistic predicates of pure idealism. Let me close by rewriting a sentence of Professor Hocking's: "Infected by a romantic idealism, the current popular philosophy of Germany justifies measures undertaken because of narrow expediency in the name of eternal principles; it justifies acts devoid of sympathy and humanity on the ground that they are in the interest of an ultimate evolution of humanity possible only through the leadership of a people which appreciates the truth of pure idealism and the meaning of pure duty; it justifies breaking of legal and therefore external and temporary obligations in behalf of an unconditional obligation to fulfill an historic mission as organ of the Absolute."

JOHN DEWEY.

NEW YORK CITY.

MR. ALBERT LEVITT, lecturer in philosophy at Columbia University in 1913-14, has accepted a position at Colgate University for the current academic year.

THE *Bulletin de l'Institut Général Psychologique* prints in its issue for July-December, 1914, an article in three parts by Mlle. Marie Goldsmith, entitled, "Les Réactions Physiologiques et Psychiques des Poissons." In the number for January-June, 1915, the editors have radically departed from their usual subject-matter and have printed a series of exceptionally interesting articles on the war, from the French point of view. M. Émile Boutroux writes on "L'Allemagne et la Guerre"; M. Henri Bergson, "La Signification de la Guerre"; M. Léon Bourgeois and M. Émile Boutroux, "La Guerre et la Vie de Demain"; M. Yves Delage, "Les grands Hommes d'Ostwald et le Manifeste des 93"; M. Edmond Perrier, "Evolution de l'Erreur Allemande."

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PSYCHOLOGY AND SCIENTIFIC METHODS

WHAT IS PURPOSIVE AND INTELLIGENT BEHAVIOR FROM THE PHYSIOLOGICAL POINT OF VIEW?

IF we may speak of the behavior of living organisms as being ruled by motives, it is clear that in nearly all instances these motives are severely practical in character. Some *end* favorable to the individual or to the species appears to be held in view; and this end must frequently if not usually be attained, otherwise the species would not continue to exist. Apparently, the general "purpose" of most animal actions is to take some advantage of conditions existing in the environment, or to modify the relations between the individual and the environment in some way favorable to the species. It is these externally directed actions which form the greater part of what is known as "animal behavior," and they represent an important, though not the only, means by which the animal adapts itself to its environment. Ordinarily we class such actions partly as "instinctive," partly as "intelligent"; perhaps their most remarkable feature is that they often have reference to a future more or less remote—they can not be understood by taking into account present conditions alone. This is why they impress us as "purposive." The "teleological" characteristic of living beings appears most conspicuously in this aspect of their life. But from the physiological point of view it is necessary to reach some purely objective or physicochemical definition of the term "purposive" as applied to such actions. The concept is clearly one derived from the age-long introspective experience of human beings, which shows purpose to be essential to effective human action; and the conception of adaptive behavior as being necessarily determined and guided by purpose has become firmly fixed in the mind of the race. To most persons, indeed, this conception seems inevitable or even innate; action directed toward a definite end is unintelligible without assuming the existence of some underlying purpose. When adopted in the philosophical sphere, and applied to the cosmic or evolutionary process as a whole, such a point of view leads to a teleological conception of nature; the whole evolutionary process then appears as essentially the expression

of purpose; the *teleological*—the realm of ends—is contrasted with the *mechanical*, as if their natures were inherently disparate,—representing, in fact, two distinct tendencies in nature. Accordingly, certain thinkers contend that the living organism—that part of nature where teleology is most evident—can not be a mechanistically actuated system merely. Something else is needed to account for its special peculiarities; and this something is usually assumed to be *that* of which we are conscious in purposive action; the organism is then conceived as the expression of a purposive agency,—the “entelechy” of Driesch and other vitalists. How are we to reconcile this idea with the conviction—which becomes more firmly based as physiological science advances—that the organism, considered as a material system in external nature, has no peculiarities that may not ultimately be accounted for on the basis of its physicochemical constitution alone?

Physiological science views the organism as a physicochemical system of a special kind, peculiar in exhibiting a unique chemical composition and a metabolism, and often a high degree of complexity, but otherwise similar in its properties and modes of operation to a non-living system. Can purposive or intelligent action be shown to be a possible or even necessary characteristic of material systems with the peculiar constitution of living organisms, and possessing their characteristic relations to an “environment”? This is the question which I propose to discuss in the present paper. My procedure and methods of reasoning will be those of objective natural science purely; and purposive actions, whether instinctive or intelligent, will be considered simply as events in external nature, disregarding their possible conscious or psychic accompaniment. I hope to show that action having all of the external marks of purpose is not in its general nature something distinctive of living organisms alone, but that it is, regarded mechanistically,¹ simply one of the many means by which a complex physicochemical system, exhibiting a metabolism and preserving an equilibrium with a changing environment, maintains its characteristic equilibration.

First we shall endeavor to define as clearly as possible what is meant by the concept of organic “adaptation,” and by the term “adaptive” as applied to various physical properties, structures, and activities in organisms. The substantial meaning of those terms, in the physiological sense, can be indicated very simply. Disregarding the complex and variable detail always found in special cases of adaptation, we find on closer analysis that all adaptive features or devices have one property in common—namely, that of furthering the continued existence of the species. *An adaptation is a species-*

¹ I. e., as conditioned by physicochemical factors alone.

conserving characteristic. An organism is said to be adapted to its environment when it exhibits physical properties, structural characters and activities of such a kind that its development, growth, and continued existence in that environment are ensured. Lack of such adjustment means early or eventual extinction. The question then becomes: what is the nature of the interaction that makes such continued existence possible? To answer this question in detail is the task of physiological science; but in general the essential peculiarities common to living organisms, as distinguished from non-living systems, may be defined quite simply. First, there is in all organisms a specific transformation of material and energy, taken from the surroundings, into the characteristically organized and active substance of the organism; and, second, the organism, once formed, exhibits automatic and other activities of such a kind as to conserve and perpetuate its own existence and that of the species. That is, these activities have as their eventual effect the securing of the materials (food, water, oxygen, salts), energy, and other conditions (*e. g.*, environmental) which are necessary for the continuance of this specific transformation. The latter is carried on automatically and independently in each individual. On its chemical side it includes the constructive processes of metabolism; by the destructive processes, chiefly oxidations, is furnished the energy utilized by the organism in its activities. It will be observed that we are here considering the organism as the *species*,—*i. e.*, as the whole succession of genetically connected and similar individuals. It is perhaps more usual to conceive of the organism as the single individual, which is conventionally² regarded as beginning its existence with the fertilized ovum and ending it with natural death; but this distinction may be regarded as unimportant from the present point of view. The existence of the species is apparently unlimited in space and time by inherent conditions, while that of the individual is limited,—both bodily size and length of life being more or less definite specific characters; but otherwise, so far as the possession of *living* characteristics is concerned, no essential distinction need be drawn. I emphasize here the conception of the organism as being constituted by the species rather than by the single individual, both because there is or has been—as a fact—material continuity between all individuals of the species, and also because it is important to remember that it is the continued existence of the species rather than of the individual which is the essential end-result of the organic activities in their

² “Conventionally,”—that is, for the reason that the germ-cells from which new individuals arise are genetically continuous with the parent organism, and it is arbitrary to say definitely when the life of the new individual begins.

totality; for, if this general principle is lost sight of, many highly characteristic features of animal behavior become unintelligible.

In general, therefore, we may class as adaptations all of those special peculiarities of form, physicochemical constitution, and behavior whose existence is favorable to the continued existence of the individual or the species. We may now make our definition somewhat more precise. For the sake of simplicity and brevity let us confine our consideration to the individual organism during the fully developed or adult period of its existence; what is needed for its maintenance? Primarily a balance between gain and loss of material and energy—a metabolic equilibrium. The physiological processes within the organism proceed automatically under normal environmental conditions (of temperature, milieu, etc.) so long as the supply of food, oxygen, and other necessary material from without is maintained; the external activities or "behavior" of the organism, thus, have reference chiefly to meeting this last requirement, *i. e.*, to maintaining the necessary supplies. We are supposing that the limits of growth have been reached; the essential requirement to be met, therefore, is that the supply of food and other necessities shall not fall permanently below the loss. Under these conditions there is equilibrium,—balance of constructive and destructive processes—and life continues normally. Those external activities which directly or indirectly have the effect of maintaining this equilibrium are the ones which are characterized as *adaptive*. Adaptation, as a condition characterizing the relations between organism and environment, is thus defined with precision; it is simply the maintenance of the organic equilibrium; adaptive features of external structure or behavior are those which contribute to this end.

Observation shows that the external behavior of animals is very largely regulated by the requirements of this equilibrium. This is best illustrated by a concrete example; in all animals we find that when the supply of food is decreased below the normal the activity of the search for food increases correspondingly; there is increased reactivity to food-materials; this is the physiological correlate of "hunger"; the chances of securing what is needed to maintain the equilibrium are thus increased. The organic equilibrium is thus rendered more stable than otherwise it would be. Compensatory or regulatory devices of this or similar kind are especially characteristic of higher animals; and it is interesting to note that they have numerous analogies in the devices used to control the rate of energy-consumption in artificial mechanisms (thermostats, governors, rheostats, etc.). Not only is the supply of material from outside thus regulated, but alterations in the structure of the living system, or in its temperature, or in the chemical composition of its tissue-media,

may similarly call forth automatic counter-processes (regeneration, altered heat-production or heat-loss, anti-toxine production, etc.) which tend to restore the normal conditions. Adaptive external behavior thus appears as one out of a large number of *regulatory* processes or activities, all of which play their part in conserving the normal equilibrium between organism and environment. Generalizing more broadly—but without altering the essential significance of what has just been said—we reach the conclusion that in any stable or well-adapted species the total action of the environment upon the organism is exactly counterbalanced by the total activities of the organism. The interaction is reciprocal, and normally results in an adjustment which renders prolonged equilibrium possible. The complexity of the processes of adjustment in the organism thus corresponds to the complexity of the environment—*i. e.*, of that part of the external world with which the organism enters into relation. In higher animals the response is delicate and selective to a degree that makes detailed physiological analysis difficult or impossible. But in all cases the essential relations between organism and environment are similar; there is an interaction involving on both sides many components, the integral effects of which on either side are typically equal and opposite, and hence result in equilibrium.

From this point of view the case of a higher animal differs only in degree of complexity from that of a lower. In general a complex and highly integrated system is more subject to derangement than one that is simpler; hence, it is not surprising to find that in its details the adjustment of higher animals involves the existence of regulatory arrangements and activities of a remarkably sensitive kind. This is well seen in external behavior. The organism responds to even the slightest changes in its environment. It is hardly too much to say that in a well-adjusted animal in a complex environment every physical event in the immediate surroundings or within reach of its distance-receptors calls forth an appropriate response—*i. e.*, the compensatory physiological correlate of the environmental change. The action of a sparrow in city streets well illustrates this. So true is this that a skilled naturalist can deduce much of the character of a previously unknown animal's environment from a study of its structural and physiological peculiarities. Each organic feature has its complement in some feature of the environment. The complexity of the organism is thus the correlative or mirror-image of the complexity of external nature.

From such a point of view the organism is to be regarded as a physicochemical system of a special kind, exhibiting a dynamic equilibrium with its surroundings, *i. e.*, an equilibrium in which two sets of processes, one constructive or constitutive, the other destruc-

tive or dissipative, balance each other. Many other so-called "stationary" systems—characterized by a continual and balanced interchange of material and energy with the surroundings—exist in nature; a candle-flame, a vortex, a waterfall are instances; all such systems have in common certain definite general characteristics; hence, the comparison of a living organism with a vortex or candle-flame is traditional, and serves to make clear certain fundamental peculiarities of the living condition. One of the most interesting general properties of such systems is a certain power of regulatory adjustment to changes of condition, *i. e.*, an ability to maintain a definite form, constitution, and properties in spite of often extensive changes of external or internal conditions; connected with this peculiarity is a tendency of such systems to recover the original condition after disturbance. This durability of form or properties, in spite of continual change of composition, depends on the unchanging character or permanence of certain components of the system, in particular those which control the inflow and outflow of the material and energy constituting it. So long as these relatively stable—usually solid or *structural*—components remain intact, the other substances composing the system, and the conditions surrounding it, may change within considerable limits without affecting permanently the properties of the system itself. Thus the constancy of a candle-flame depends on the permanence and uniform properties of the wick and cylinder of paraffin and the supply of oxygen; the permanence of a vortex depends on some permanent configuration of the river-bottom, and so on. Similarly in the organism some permanent structural substratum must be assumed, which conditions in a specific manner the character of the perpetual metabolic transformation; so long as this substratum remains essentially unaltered the organism continues to "live," in spite of changes of food-supply or of external situation. Hence the organism, like a candle-flame or a fountain, tends to "right" itself after disturbance. Various analogies may be pointed out between the adjustments of inorganic systems of this class and the adaptive responses of animals, but it is unnecessary here to dwell on these in detail. It is, however, important at this stage in the discussion to recognize the general resemblance between such systems and living organisms; for many of the activities of the latter depend, in the last analysis, upon their having the general properties of physicochemical systems of this class.

We shall now consider more particularly the case of the living organism. For our present purpose we may divide the adaptive characters conveniently into two classes, (1) those having regard to the stability of the conditions within the organism itself (*e.g.*, special physiological functions like secretion, or special structures like the

heart-valves, etc.) and (2) those having regard to the stability of the relations between the organism and the environment. The second class form the subject of our immediate consideration; they include the various *external* adaptations—those which are directly concerned in the interactions between organism and surroundings. These may again be divided into two groups, first, those adaptive characters which may be described as *static*, consisting in various *permanent* peculiarities of form, color, or other physical property or structure (such as specific gravity in fishes, covering of feathers in birds, etc.); and, second, *active* adaptations, including all of the active responses which the organism makes in adjustment to changes in its environment. Instinctive and intelligent actions of all kinds belong in this second sub-class, which forms the chief subject of the present discussion; but since all such adaptive reactions exhibit certain general characteristics whose physiological significance is best made clear by a consideration of the static class of adaptations, we shall first consider the latter in some detail.

In all organisms part of the adaptation to environment depends on purely static conditions, which involve no external activity, either instinctive or intelligent, on the part of the organism. In such cases the external condition to which the organic adaptation has reference is to be regarded as *constant*, *i. e.*, as exerting its influence continually; it is a *permanent* feature of the normal environment, so that a permanent and relatively unchanging organic adjustment is sufficient to preserve the balance. This may be best illustrated by reference to one of the most general and constant physicochemical peculiarities of living cells. Consider, for instance, the cells of marine organisms; these are typically bathed by a medium which is either sea-water or has the essential composition of sea-water; obviously such a medium has a widely different composition from living protoplasm; and since protoplasm consists largely of crystalloid substances in a state of solution, it is evident that if free interchange of diffusible substances were possible the living system could not long retain its distinctive composition. This constant tendency to diffusive interchange is met by a simple compensatory physiological condition. The living cell is typically enclosed by a membrane or surface-film, the plasma membrane, which is impermeable to the diffusion of the majority of soluble substances contained in the cell and its medium. This "semi-permeability" of the plasma-membrane *insulates* the living system from its surroundings, and enables it to retain permanently its characteristic chemical constitution with the associated vital properties. Loss of material from the cell by diffusion is thus greatly retarded, if not entirely prevented; at least it is reduced to such a degree that little if any intake from the sur-

roundings is required to compensate the loss of essential cell-constituents by diffusion. The maintenance of a balance between supply and loss thus requires the expenditure of far less energy than would otherwise be the case. Interchange of material is in effect restricted to food and excretory substances, which are probably transported across the cell-boundary by some special physiological mechanism which acts intermittently. In brief, the disintegrative effects of diffusion upon the living system are prevented by the presence of a diffusion-proof partition. Some other cases illustrating the same general principle may be cited. The devices for preventing evaporation or loss of heat in terrestrial or warm-blooded animals furnish good illustrations. Terrestrial organisms, both animals and plants, are subject to continual loss of water by evaporation; this loss is limited by the presence of the general outer integument, which is typically waterproof to a high degree. It is important to note that in this case the condition is not purely static; the rate of evaporation varies with temperature and atmospheric conditions, and in correspondence with this we find that the skin of higher animals, or the epidermis of plant-organs like leaves, shows considerable variability in its power to resist loss of water. To the variability of the milieu corresponds a variability of the correlative organic structure; this kind of correspondence is highly typical of organisms, as already pointed out, and constitutes the second of the two aspects of adaptation defined above. The two, in fact, nearly always occur in intimate association with each other. Thus the plasma-membrane, though typically semi-permeable as just described, does not always act merely as a passive diffusion-preventing partition, but exhibits variations in its permeability, thus enabling the necessary interchange of materials to take place. A similar combination of static and active adaptive devices is found in the thermo-regulatory mechanisms of warm-blooded animals. Here the loss of heat is limited by the slowly conducting integument, so that normally the heat lost is balanced by that generated by oxidation within the body. In general the integument is the more efficient as a thermal insulator the greater the average difference of temperature between body and surroundings. This static arrangement is supplemented by various active mechanisms, which control the rate of evaporation from the skin, its blood-supply, the position of hair and feathers, rate of respiration, general muscular activity, and so on. Similarly, the provisions for balancing the supply and consumption of oxygen are partly static, although the static factors are relatively less important, especially in higher animals, where the oxygen-requirements vary widely according to the activity of the animal; nevertheless in all animals with respiratory organs the latter function continually, though at a rate which varies

with conditions and is subject to automatic regulation—usually through the influence of the chemical composition of the blood upon the respiratory motor mechanisms.

We may assume that analogous permanently acting arrangements would have been evolved to provide for the supply of the other chemical substances needed by animals, as food, salts, and water, were it not for the irregular distribution of such substances in nature. This has led to the development of various special activities and instincts; and it is chiefly by means of these that the necessary balance is secured. This statement, however, applies only to higher organisms; in those which obtain their carbon and nitrogen from a medium in which these elements are everywhere present in assimilable form—as is the case with most plants and a few animals—the process of intake is unintermittent (at least during light), and permanently acting devices suffice to preserve the equilibrium. Thus in green plants the carbon dioxide which enters the leaves is assimilated by a constantly acting photosynthetic process as rapidly as it enters; such an arrangement may be described as static in the present sense.

One static condition which is more generally looked upon as a special adaptation of a peculiarly vital kind is the protective coloration exhibited by so many animals; here we have a condition which is a factor in conserving the equilibrium between species and environment because it renders less appreciable to enemies the difference between the organism and other objects in the environment. The fact that insectivorous animals are in general indifferent in their behavior toward leaves, twigs, and similar objects, makes a resemblance to these a condition favorable to survival. Here the similarity to a physically balanced condition is less evident; yet in its essentials the situation is fundamentally similar to those already considered. The protective resemblance is the correlate, in the organism, of a certain constant condition in the environment, namely, the existence of a selectively acting agency, the activity of food-seeking animals, which is always at work to destroy edible forms of life. The condition for the effective operation of this agency is that the difference between edible and inedible objects should be apparent to the predatory species. Hence, when this difference is obscured the process of destruction is checked, and when the balance is reached the protected organism is more numerous than it would otherwise be. Protective resemblance in any organism is thus the compensatory physiological correlate of a certain definite environmental condition which tends constantly to diminish the numbers of the individuals forming the species.

The most constant general features in the geometrical form and external symmetry of animals can similarly be shown to be static

adaptations in the above sense, *i. e.*, species-conserving characteristics whose correlative is some constant peculiarity of the environment. Thus sessile organisms (*e. g.* plants, hydroids, actinians, corals, etc.) tend to exhibit a radial symmetry; that this condition is essentially an adaptive one may be seen from the following considerations: To a stationary animal in a stationary environment, *e. g.*, a coral or a sea-anemone, the external space-relations are symmetrical; such an organism is living in a medium from which supplies are equally likely to reach it from all sides; to this environmental condition corresponds an organic symmetry which makes no distinction between directions; the structural parts are so disposed that the receptive organs (tentacles, etc.) reach out in several directions of space, typically separated by equal angles, converging toward the central mouth. The precise number of radii varies, as is well known, and was probably determined originally in the ancestral organism that fixed the type by partly casual conditions, having reference to economy of material, etc. In radiate organisms as we now find them (including plants as well as animals) the number of radii appears in general to be smaller the smaller the body-size; in organisms with a wide spread, like trees, secondary radii appear, and a dichotomously branching system develops, which is characteristically symmetrical; *i. e.*, the relations of the organism to the different directions of space are alike. This arrangement is the correlate of the fact that in their *physiological* relations, *i. e.*, as possible source of food material or other supplies, all regions of space are alike to such an organism.

Very different conditions are found in locomotor organisms; here antero-posterior differentiation, usually combined with bilateral symmetry and dorso-ventrality, is the rule. In what does the adaptiveness of this characteristic morphological plan consist? The general adaptiveness of antero-posterior differentiation in a motile animal consists simply in this, that when such an animal moves forward the external effect, so far as the animal is concerned, is the same as if all objects in the surroundings situated in advance of the animal (except those moving faster than itself) were to move *toward* its anterior end; similarly those situated behind move, relatively speaking, away from its posterior end. It is thus plainly advantageous to such an animal that its food-receptor organs—*i. e.*, mouth with the associated prehensile apparatus and the reflex arcs operating this—should be situated in advance, where external objects, including food, are (relatively speaking) *approaching* it rather than behind where they are receding from it. For the same reason the reflex arcs, with the associated special sense organs, controlling the locomotor apparatus, are situated anteriorly. The relations of such

an organism to the environment are evidently more favorable to the maintenance of a balance between supply and loss than would be the case with any other arrangement. The physiological space-relations in a moving organism are, in fact, asymmetrical in this constant sense, and to this environmental asymmetry corresponds the constant asymmetry of morphological plan characteristic of motile animals.

The differentiation into similar right and left halves is, in part, an indirect consequence of antero-posterior differentiation; but this alone is not sufficient to account for the condition, as we see in the case of many spirally swimming animals with well-pronounced antero-posteriority, like infusoria and rotifers, where bilateral symmetry is absent or obscured. Typically it is found associated with dorso-ventrality; the existence of this last condition, however, is ultimately to be referred to the action of *gravity*; gravity makes the relations *up* and *down*, though similar in a purely spatial sense, physically unequal, and occasions a corresponding inequality between upper and lower in organisms, as in all other physical systems subjected to its influence. This influence has acted gradually but constantly, and has determined the evolution of organic forms with the characteristic correlative or compensatory peculiarities. We find that external dorso-ventral differentiation is most pronounced in animals living on the land or on the sea-bottom; in pelagic animals it is in general less evident or absent. It seems probable that the condition originated in shore-living or bottom-living forms; it is obvious that supporting or locomotor structures (legs) acting by pressure or impact against a horizontal substratum like the land or sea-bottom are best placed, from the standpoint of mechanical effectiveness and economy of material, not when they are distributed uniformly over the whole body-surface, but when they are confined to a certain *portion* of this surface, corresponding apparently to that region which at any one time can be opposed to the substratum; this surface is thus defined as *ventral*. The dorso-ventrality of walking and flying animals is thus the physiological correlate of the general fact that their movement depends largely on the equal and opposite reaction of their bodies to pressure exerted in a prevailing downward direction against a supporting medium or substratum. It is interesting to note that in swimming animals like fishes, which are supported by immersion in a medium of their own specific gravity, external dorso-ventrality is in general much less pronounced than in terrestrial or bottom-living animals.

The condition of bilateral symmetry has an intimate relation to both dorso-ventrality and antero-posteriority. Given these two conditions, it is clear that simple mechanical requirements will necessi-

tate the equal and symmetrical placing of locomotor organs on either side of the long axis. Otherwise any definitely directed forward locomotion will be impossible, or at least will be effected with difficulty,—*i. e.*, with disproportionate and wasteful expenditure of energy. Obviously this would be the case if the majority of walking or swimming appendages were situated to one side of the long axis. Constant shifts of position and direction of action would then be needed to propel the animal in a straight line. It is evident that any single push from a locomotor appendage against the substratum must inevitably cause some lateral deviation of the whole animal unless the action is exactly in the direction of the long axis. But with two equal and similarly placed appendages on opposite sides of this axis, the transversely directed component of the one action is compensated by the equal and opposite component of the other; random lateral displacement as well as rotation about the long axis is prevented. Bilateral symmetry of locomotor appendages is thus an advantageous arrangement for definitely directed forward locomotion; its general "adaptiveness" is thus evident from what has been already said about the essential physiological significance of antero-posterior differentiation. Bilateral symmetry in the locomotor apparatus will necessitate directly or indirectly bilateral symmetry in the remainder of the organization.

It thus appears that the fixed structural plan of the great majority of animals with reference to the three dimensions of space represents in reality an essentially adaptive or species-conserving correspondence to the most constant general features of the environment—those which are fixed and invariable in the very nature of mundane things—*i. e.*, the geometrical and the gravitational. It will be observed that there is only one plane of symmetry in such an animal, the sagittal—that including the direction of normal locomotion and dividing the body into equal right and left halves. It is also essential to note that the environment—*i. e.*, the external world *in its relation to the animal*—although it may have innumerable planes of symmetry when the animal is at rest, also *has only one plane of symmetry when the animal is moving forward*. This may be seen more clearly if we imagine the environment to be moving continually in one direction and the organism stationary, as, *e. g.*, in the instance of a water-plant attached by one end, or a fish maintaining a constant position in the centre of a running stream. Here the organism tends automatically to place itself with its sagittal plane parallel with that of the current;³ the two sides of the organism are then equally

³ *I. e.*, the median vertical plane of the current parallel to the direction of flow. The rheotropic reactions of fishes illustrate this tendency.

acted upon by the environment. In no other position is this the case. Now it is to be noted that the direct effect of the moving environment on such an animal (*e. g.*, a fish) is physically the same as if the animal were moving straight forward and the environment stationary. The two sides are equally acted on by the environmental conditions; anteriorly, however, these conditions are different from what they are posteriorly, and above from what they are below. The only symmetrical relations are the *lateral*, or right and left relations. If we now consider the environment as stationary and the organism as moving forward, the essential relations between organism and environment are seen to be the same. As already pointed out, the regions *toward* which such an animal is moving are quite differently related to it from those *away from* which it is moving; the regions above (*i. e.*, away from bottom) are different from those below (toward bottom). Only right and left are similar. The morphological similarity of right and left halves thus corresponds to the similarity in the right and left halves of the environment of the moving animal. When the latter moves forward it creates, as it were, a plane of symmetry in the environment corresponding with its own plane of symmetry.⁴

This analysis is not complete,⁵ but it is probably sufficient for

⁴ Any one can convince himself experimentally of this by contrasting the environmental conditions of a boat floating at rest—which are the same on all sides—with those of the same boat moving forward at high speed; the difference between fore and aft then becomes sufficiently evident; the whole environment (in its relation to the moving object) is *seen* to be divided into symmetrical right and left halves, separated by the vertical plane which includes the direction of motion. Thus the bilateral symmetry of a motile organism corresponds to the bilateral symmetry of the environment in which it moves,—and which may be regarded as moving relatively to it. The reciprocity in the relations between organism and environment, could scarcely receive a better illustration. Lack of bilateral symmetry in a moving organism would, in fact, interfere with locomotion in a straight line. This principle applies to moving bodies generally; this is why boats, carriages, flying-machines, etc., are bilaterally symmetrical. The biological advantage of being able to move readily from one region to another in a *straight* line is that the change of position is effected with the least possible expenditure of energy. Economy is an important consideration to an organism engaged in the struggle for existence.

⁵ The explanation of dorso-ventrality may be criticized as not taking sufficient account of the conditions in organisms like fishes and other swimming animals; but the fact is that in general dorso-ventrality is much less pronounced in these animals—at least externally—than in animals that are supported on a solid substratum. In other words, as the external conditions above and below approximate to equality, the organic conditions do the same. The contrast between bottom-feeding and pelagic fish and mollusca emphasizes this; contrast, *e. g.*, a darter with a flounder, or a limpet with a squid. Of course if a condition of dorso-ventrality and bilaterality has once been reached in any ancestral

the present purpose, which is to show that the permanent features of an organism's constitution exhibit a definite correspondence with the permanent features of its normal environment. And, further, that this correspondence is of such a kind as to favor the continued existence of the organism in that environment. We shall now see that the same is true with regard to the *changing* features of the environment. The general principle of adjustment is the same; the external activities or behavior of the organism show a constant correspondence with the environmental changes, and are in general compensatory in their effect; *i. e.*, they also tend to offset or equilibrate the disintegrative influences which the environmental conditions in general exert upon the organism,—in other words, have the effect of furthering the continued existence of the species in that environment.

In adaptations of this second class, the so-called "active" adaptations, conditions become more difficult of analysis. The simplest cases are, perhaps, the ordinary reactions of food-taking. In most animals there is a selective response to edible as distinguished from inedible objects; in many cases the basis of this response is a simple chemically actuated reflex; thus in the simplest metazoa, *e. g.*, *Hydra* or actinians, the tentacles react to the contact of food particles by capturing and conveying these to the mouth, but show no response to indifferent objects like pieces of paper. The food-carrying reflex is initiated by certain chemical substances usually contained in the food; a reflex arc terminated by special "chemo-receptors" forms the physiological mechanism. Such a reaction can hardly be called an instinct, since it is shown by detached tentacles as well as by those connected with the intact animal. Yet it is plainly adaptive, *i. e.*, ministers to the survival of the organism. What has such an action in common with instinctive or intelligent behavior?

In intelligent action the quality of "purpose" appears always to enter; there is conscious reference to the future; the present action so alters the conditions that future needs are met. This last is true also of most instinctive actions; only here there is no certain evidence of any conscious accompaniment. Both kinds of action must for our present purpose be considered as events of a purely physiological kind. What is the nature of the physiological mechanism that renders such action possible?

Now it may be said that a food-taking reflex is a "purposive" action (using the word in its purely objective connotation) since it has the effect of securing for the organism a supply of energy which line, the descendants will tend to exhibit these characters, independently of environmental conditions, by virtue of the general principle of persistence or repetition so characteristic of organisms.

is utilized for future needs; in this sense, indeed, any action which provides for the continued existence of the organism may be called purposive. But the term as ordinarily understood typically has reference to some *special* future contingency not present at the time, and for which some definite preparation is made in advance. Interpreting the term in this sense, let us consider a few examples of purposive behavior in animals.

Instincts which seem to imply foresight are innumerable. Probably the most striking instances are those which relate to the perpetuation of the species. Here the organism acts in such a way that the future existence of its species is furthered, even though its individual life is sacrificed, as in fact is often the case. In general, all of the instincts centering on reproduction have directly or indirectly the effect of securing conditions favorable to the development of the fertilized egg up to a stage at which the new generation can care for itself. The instincts leading up to and connected with pairing all have this future reference; so, also, have those connected with the care of the young. If these acts are carried out in a certain definite way in each generation the continued existence of the species under the normal environmental conditions is ensured. Using more general terms, therefore, we may say that the ultimate effect of such actions is to maintain the equilibrium of the organism with external nature; they belong in the general class of *regulative* reactions, *i. e.*, those which either continually or at intervals compensate or correct deviations from the balanced condition; they provide for the persistence of the organic equilibrium, *i. e.*, of the species. The complete analysis of purposive instincts of this kind is, however, too complex for the present purpose, and it is better to select simpler for illustration.

Many animals in temperate zones make in the autumn or throughout the year special provision for passing the winter. Frogs hibernate, many birds fly south, squirrels collect stores of food, various insects such as bees do the same, others construct cocoons, cysts, or burrows in which they or their larvæ lie dormant during the cold period. The intelligent provisions made by human beings may also be classed here. How are these various reactions to be regarded from the physiological standpoint? It is first to be noted that all show one evident common characteristic. They may be regarded as *protective* reactions having reference to a certain definite and regularly recurring situation in the external world, namely, the coming of a prolonged period in which temperature is low and food is scarce. The behavior is such as to secure survival in the face of these changed conditions. Now what is especially to be noted is that in every one of the above cases the characteristic behavior, which has reference to

the *whole* situation, is called forth or initiated by only a *part* of the same, and often a quite inconspicuous part. Thus swallows respond to the advent of the chilly days of early autumn by gathering in flocks and flying south. The migration is an adjustment to the entire situation just defined, not simply to the external change which *initiates* the characteristic sequence of behavior; the immediately inciting occasion, the change of weather in autumn, requires in itself no special adjustment. But the connection between this change and the coming of winter is *constant*; in reacting thus to a part of the situation the animal in reality is adjusting itself to the whole.

In all instinctive actions which have future reference we find this to be the case; the action has reference either to the whole situation, or to a part of the situation which is not present at the time the reaction is begun; typically the reaction is set in motion by only a part, and often an insignificant part, of the whole external sequence of events;⁶ but this part constitutes a sign or index of what is to follow; and it is to some part of this succeeding condition that the animal adjusts itself; this it does by beginning a reaction or series of reactions which in its early stages may seem to have no reference whatever to the situation in which it finds itself at the time. Such a reaction is unaccountable by reference to the present alone, and hence impresses human observers with a sense of purpose or conscious foresight. But it is clear that nothing of the kind is necessarily implied, any more than intelligent caution is implied in the behavior of a boiler which lifts its safety-valve when the steam-pressure approaches the danger-point. In both cases there is a permanent mechanism⁷ which gives a definite response to a certain change of situation. This response provides against a future contingency. What is remarkable is that the conditions of the action and its ultimate effect are exactly what we should expect them to be if the whole situation were under the observation and control of some intelligent purposive agency. What are the conditions *in the organism and in external nature* that render possible such successful anticipation?

On closer examination such an instinctive action, though complex, is seen to have all of the characteristics of a simple protective or food-securing reflex, as regards both the conditions under which it is aroused and its ultimate effect on the life of the animal itself or of its

⁶ *I. e.*, by some *constant precursor* of the situation which the reaction is adapted to meet.

⁷ We are not now considering just how this mechanism came into existence. Of course the safety-valve is a product of purposive intelligence. But such intelligence has a physiological basis, or at least correlate, the nature of which we are about to discuss; hence both kinds of devices are ultimately of physiological origin.

species. In every case of a purposive instinct we find the organism reacting *in a constant manner* to a condition *that recurs with constancy*. The case differs from the direct reaction to the presence of food-material only in its complexity, and in the fact that the total situation to which adjustment is made *takes time to develop*, and, hence, an essential part of the reaction involving adjustment is made in advance. Thus the spider reacts to the conditions into which it is born—namely, a world with corners, branches, and crevices, and a certain concentration of flying insects—by constructing a web and lying in wait; the essential end-result of this—the species-conserving or equilibrating consequence—is the securing of food. The digger wasp responds to the presence of fertilized eggs in its oviduct by digging a hole, stinging a caterpillar on the ventral surface—which quiets without killing the prey—placing the victim in the hole, and laying eggs upon it. Here the sequence is more complex, but it is none the less constant, and corresponds to a similarly constant combination of conditions in nature,—namely, presence of caterpillars with ventral nerve cord, constant properties of the wasp's own eggs and larvæ, a certain consistency of soil, etc.; the eventual outcome of the behavior-sequence is also constant, namely, the development of a sufficient proportion of eggs to ensure the continuance of the species. In their general features these two examples are typical. There are always the two correlates (1) constancy of the situation in external nature, and (2) constancy of the physiological response, or behavior-sequence, which directly or indirectly effects the adjustment.

The perfection and ingenuity of many animal instincts is simply one of the essential conditions of their effectiveness; constancy in the external conditions is another; if on the whole such behavior did not secure survival, the organism, and its instincts with it, would soon die out. Thus, from the most general point of view, a purposive instinct involving a complex series of actions must be regarded as a species-conserving response to a certain constant, though temporally extended, natural situation; the sequence of events composing the latter may be long and complex, but if it is *constant*—so that when the earlier events occur the later are definitely predetermined—the organism may take in the early part of the sequence an action which puts it into advantageous relations with events or conditions appearing later. In such cases the organism may be said to have exhibited purpose. *Conscious* purpose is, however, no more implied than in the production of winter-eggs by daphnids, or of hooks, flying organs and other means of distribution by seeds; in the case of the daphnids the external or environmental correlative of the constant periodical formation of resistant eggs is

the constant recurrence of winter; in the case of the plant the correlative of bur-formation is the more or less frequent passage of bur-bearing animals through the wood; in that of flying organs like thistle-down, the constant presence of winds. In each of these instances the organic formative process precedes in time the appearance of the situation to which it furnishes adaptation. The feature common to all is a constancy in certain peculiarities of the external world; a correlative constant physiological process supplies definite corresponding means of adjustment or equilibration. We may say that there are always the two *routines* which show a fixed correspondence with each other, the one being the routine of external nature (*e. g.*, the regular recurrence of cold seasons, etc.); the other a certain metabolic or formative routine in the organism, involving priately reacting nervous and muscular mechanisms in others. Where the processes resulting from these two routines come into interaction they compensate each other. Hence it follows that in all cases the normal outcome of the organic activity is *species-conserving, i. e.*, adaptive.

It would seem that the characteristic human uncertainty about the future has made it difficult for men to realize the fundamental constancy of natural processes; and hence they have been perhaps unduly surprised at the complexity and detailed fitness of many instincts and habits involving future reference. Actually, however, the constancy of complex sequences in nature may be fully as great as that of simpler sequences like the succession of day or night or the recurrence of the seasons; and the fact that organisms show many special peculiarities of structure and behavior that as it were *count on* this constancy of sequence and condition in nature is from the above point of view not surprising. These physiological peculiarities are necessary to the stability of the organic equilibria. We must regard all cases of adaptation—whether depending on static peculiarities of form or structure or on special activities—as representing essentially, from the physicochemical point of view, *equilibria* of greater or less complexity. Conceivably the relation of an organism to external nature might be represented by an equation, one side formulating the conditions in the organism, the other those in external nature. Both sides of such an equation *might* be equally complex, but this is not always necessary. What is essential is that the *totals* of the two opposed or reciprocal sets of activities should balance each other. In some cases the activities of the organism may be reduced to relatively simple terms, *e. g.*, if the environment is uniform or the living system is well insulated from its surroundings; we find this general condition in plants. On the other hand,

when environmental conditions are changeable and complex, and the organism also is complex, such simple static arrangements can not suffice to secure equilibrium. Only systems with highly developed powers of regulation are capable of continued existence under such conditions. In this manner we may account for the evolution of the physiological complexity which we find in higher organisms; the complex and constantly changing environmental conditions require in the organism a correspondingly complex and changeable apparatus of regulation and response, if adjustment is to be effected. Such a general condition, in which complex and varying situations in nature are met and compensated by correspondingly complex and variable series of organic activities, reaches its acme of development in the kind of behavior known as intelligent.

The purely physiological distinction between intelligent actions (which are *conscious*, at least in their origination) and instinctive actions (which probably as a rule are carried out *unconsciously* like most other physiological processes) is difficult to define. In so far as intelligence consists in the proper *classification* of situations or occurrences—as a preliminary to acting in reference to them—it can not be regarded as essentially different from instinct. A situation is recognized by an intelligent agent as one of a certain previously experienced *kind*—or as a combination of such situations;⁸ a response or series of responses, appropriate to that kind of situation, follows; in other words the *constancy* of the situation or of its elements is recognized, and it is met by correspondingly constant mode or modes of action. The complexity of the external situation thus reacted to may be very great; in such a case we must assume a corresponding complexity in the physiological correlate,—*i. e.*, in the structural and physicochemical conditions within the organism that underlie and determine the response. But there seems to be no need for assuming the operation of an inherently different kind of agency.⁹

⁸ The analytical activity of intelligence comes in here. This appears to be physiologically analogous to selective reflex response. Normally any organism reacts selectively—*i. e.*, analytically—on its environment by means of the special sense-receptor termini of its reflex-apparatus.

⁹ Many students of this problem lay stress on the *changeable* character of intelligent action, as contrasted with the stereotyped character of instincts. Intelligence is shown, *e. g.*, when an animal learns to respond effectively to an unfamiliar situation,—as when it learns to thread a maze, at the other end of which is its food-supply. Memory or power of forming new “associations”—*i. e.*, in the physiological sense, new kinds or combinations of neuromuscular connection—is implied here. Hence associative memory has been regarded as the objective criterion of intelligence by various authors. Memory is shown, objectively, in the modification of a reaction in a constant manner under

The part played by language in the intelligent actions of human beings is of course an enormous one. But language is known to be based on a recognition of the *constancies* or "universals" of experience; its very existence presupposes that the static facts, occurrences, modes and conditions of change, relations, etc., symbolized by words and word-sequences, have been repeated over and over again (sufficiently at least for their recurrent character to be realized), and will continue to be repeated. Hence it immensely facilitates the work of classification, *i. e.*, of recognizing a situation as belonging to a definite *kind*. This last, however, is the essential criterion of intelligent action; language, as an instrument of biological adaptation, is to be regarded as essentially a means to this end. Through its means experience is largely analyzed and classified in advance; the situation may be already clearly defined before it is met with; hence it is easily recognized, and the appropriate response is at once indicated or set in operation. How important this is for effective adjustment is obvious.

From this point of view words, and the concepts which they symbolize, represent or correspond to the various permanent physiological mechanisms (*e. g.*, reflex arcs and their combinations) which underlie and make possible the special active adjustments appropriate to the various situations in which the organism repeatedly finds itself. When the situation is recognized as belonging to a certain *kind*, for which an adjustment already exists in the organism, the problem of dealing with the situation is solved. The special physiological mechanism of adjustment required by the situation is repetition of the external situation. In the process of learning the "intelligent" animal modifies its reaction in the direction of securing better and better adjustment to the situation. We must note, however, that whether the physiological mechanism of adjustment is already perfect at birth—as in the web-spinning instinct of spiders—or whether it is perfected by degrees under the control of experience (trial and error, etc.), *the end-result is the same, i. e., the establishment of a constantly effective physiological correlate to the constant environmental situation*. Once the proper mode of reaction has been learned its physiological basis tends to persist (given proper use), and the reaction is employed whenever the corresponding external situation arises. Undoubtedly the ability to modify the reactions until they accord with—*i. e.*, secure adjustment to—the outer situation is characteristic of intelligence; but the process of modification itself takes place in a constant manner (varying from species to species), and represents a special adaptive physiological property with a definite physico-chemical basis. Through its means the attainment of an effective correspondence between behavior and external situation is greatly facilitated. The end-relation, where constancy of response answers to constancy of situation, is more readily established. Intelligent action consists largely in tentative efforts to bring about this correspondence. Hence the behavior even of intelligent persons tends to become stereotyped as they become older and more familiar with their conditions of life.

readily activated or reinforced by the right word; this is a matter of common experience and needs no special emphasis. Hence to define a situation accurately by a word or sentence involves adjusting oneself to it. To a well-trained soldier the connection between the word of command and the action is inseparable.

No such summary treatment can do justice to the problem in detail. But its biological aspects are fundamental, and are only beginning to receive proper consideration. Intelligent action is to be regarded as a mode of organic response, and its special physiological prerequisites must be determined by scientific investigation. Especially is it necessary to single out those peculiarities which it possesses in common with other forms of response, both in animals and plants. Its affinities to instinctive behavior, and ultimately to selective reflex action, are to the physiologist unmistakable. Analysis, however, does not alter the total character of the thing analyzed; and the dignity of intelligence is not affronted by a recognition of its biological origin and affinities, while insight into its essential nature may be greatly increased. The intellectual apparatus of conceptual reasoning must be regarded as having a correlative physiological apparatus consisting of permanent organic predispositions or adjustments of various kinds;¹⁰ these adjustments correspond to the various continually recurring situations which the organism must be prepared to meet in its normal life. There must be a physiological basis for logical processes. Even Aristotle recognized that in conscious reasoning there is a union of the "universal," or permanent category supplied by the mind, with the "particular" furnished by experience; the latter is thus definitely characterized or specified, *i. e.*, becomes an object of *knowledge*; and if need be the appropriate action may then be taken in reference to it. The physiological interpretation of this law is evident from the foregoing; to the "universal" corresponds the permanent physiological mechanism of adjustment within the organism; it is the "particular" event or condition in nature which calls this mechanism into action and so brings the organism into effective—*i. e.*, self-conserving—relations with its conditions of life. It is clear that an essential *constancy* in the conditions under which events take place, both within the organism and in external nature, is the main prerequisite to such interaction. But it is just such constancy which to the scientific observer is the most significant and wide-spread peculiarity of nature; investigation discloses everywhere continual recurrence of the same elements, both of static condition

¹⁰ As already pointed out (foot-note, p. 607), in *intelligent* organisms many of these adjustments are to be looked upon, not as already permanent or stereotyped, but as in process of being made or perfected. This qualification, however, does not alter the essential nature of the case.

and event; the living and the non-living are alike in this respect.¹¹ Recurrence, however, implies permanence of condition; this peculiarity of the physical word points, therefore, to the permanent or essentially timeless character of the conditions underlying natural processes. To pursue those considerations in further detail would carry one beyond the limits of the present article.

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CIRCUMVENTING DARWINISM

THE theory of evolution is to-day so cherished among our collective possessions, so valued a treasure of the social mind, that it is almost impossible to realize the sense of outrage it once stirred. It controverted Biblical narrative, to be sure, and it committed the grave offense of upsetting or threatening to upset a social classification, the absolute distinction between the human creature and the brute, but worse than all it was a doctrine of change, a doctrine thrust on a century that was on its death-bed before it entertained the idea of transferring its interest from the permanent to the changing.

The dying century took the idea of change into consideration, but it did not seriously make up its mind. Nor did it do more than take the idea, as we might say, into further consideration, for in earlier periods change had not been wholly disregarded. It had been regarded as purposive, as designed; conceded to be uncontrollable by man, it was hypothecated as controllable by God, the agent of man. The argument of design was the concession made to the change recognized as inevitable.

Now the concept of the origin of species controverts the argument of design.¹ Change proceeding by successful variations is not teleological. As long as this revolutionary position of Darwinism was clear, it was bound to be withstood by conservatives of all kinds. And withstood it was, violently and successfully,—until by a process of obfuscation it had been rendered acceptable.

The obfuscation was brought about through suppression and distortion. The implications of change in the origin of species were eliminated and the survival of the fittest variation was interpreted

¹¹ See my article on "Vitalism versus Mechanism," in *Science*, N. S., Vol. 40, 1914, page 840.

¹ Cf. Dewey, John. "The Influence of Darwinism on Philosophy," page 8. New York, 1910.

as the survival of the best. The old argument of design becomes the new argument of progress.

This assurance of progress was snatched illicitly from Darwinism to sugar-coat the pill of change. We have changed just because we are superior, the theory of evolution is made to convey to the conservative; we are superior because we change, it means to the more radical. Either way it flatters group conceit. It imparts, too, the self-assuring sense of being born to a mission in the universe.

Now and again there has been a reminder that the theory of the successful variation does not mean the survival of the best. But the reminder is hardly a check upon the progressives. Life is a struggle, Darwin says so, they urge, a struggle between the sexes, between economic classes, between nations, between races. The struggle is a test of the best, and survival through elimination is all to the good of mankind.

It is an argument that backs any oppression of the weak by the strong, any claim to special privileges, any spirit of exclusiveness, any intolerance or brutality. It supports racial discriminations, international war, economic competition. It may be turned into a pleading for the existence of disease, for unwholesome conditions of all kinds. And, *mirabile dictu*, it has become as much of a club against changing such conditions as was once an all-wise Providence.²

But most of all the theory of evolution is used as an argument for working upon people rather than upon conditions, encouraging the will to power over fellow creatures rather than over the conditions they live under. It shifts the responsibility to nature; just as it once shifted it to God. Just as man operated upon man through the gods, he would now operate through nature, disguising his will to power under the mask of natural selection. God punished the wicked—Nature weeds out the fellow in the way, the unfit.

And so perverted, Darwinism has been rendered a double-headed instrument of satisfaction, a highly pragmatical kind of doctrine. It justifies the will to power over others, humoring conceit of class or nationality or race; it allows the shirking of reality,

² Like the appeal to Providence, too, as the source of all things it checks research. For example, after a clear-sighted discussion of the evils of caste in India, Sir Herbert Risley in referring to its origin remarks: "Its precise origin is necessarily uncertain. All that can be said is that fictions of various kind have contributed largely to the development of early society in all parts of the world, and that their appearance is probably due to that tendency to vary, and to perpetuate beneficial variations, which seems to be a law of social no less than of physical development." ("The People of India," page 265. Calcutta and London, 1908).

i. e., of change as mere change. But the hour of this popular teaching draws to an end. Already its justification for group conceit has been challenged; its justification for shirking reality will be more lasting, but it too will pass, the need for it dwindling. Some day we shall be content to be assured merely of the disastrous effects of inflexibility, of failing to meet whatever change takes place. We shall stop clamoring for the assurance of progress from our social philosophy as we have stopped clamoring for the promise of heaven.

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REVIEWS AND ABSTRACTS OF LITERATURE

Milton and Jakob Boehme: A Study of German Mysticism in Seventeenth-Century England. MARGARET LEWIS BAILEY. New York: Oxford University Press. 1914. Pp. vii + 200.

To the author of "Milton and Jakob Boehme" we owe gratitude for a clear, though brief, exposition of the place in seventeenth-century thought held by the Teutonic philosopher, of whose crabbed writing a contemporary translator said: "Though you know I alwaies affected it and him, yet durst never saile into the ocean of his vast conceits with my little skull, me thought the reading of him was like the standing upon a precipice or by a cannon shott off, the waft of them lickt up all my brains." Boehme's influence, though hardly so violent as here suggested, radiated far and deep into the consciousness of the two generations following his own.

One reason for his influence was the frankness with which he faced the mystery of evil. Although he believed in the oneness of God and nature, he conceived of man as a microcosm and of the human soul as self-existent and free to choose between its own latent good and evil. In its choice is manifest the law of opposition, with conflicting forces assimilated into harmony. The analogous harmonizing process in nature is brought about by seven organizing spirits, the first three representing the centripetal, centrifugal, and rotatory laws of motion, the fourth the pivot between the physical and the spiritual forces, and the last three the spiritual equivalents of the laws of motion. In this process of self-manifestation through opposition, both in God and in man, will is the dominant force.

Before elucidating Boehme's doctrines Dr. Bailey traces the history of mysticism from Plotinus through the seventeenth-century academies. The English line of descent, necessarily meager, would have seemed more nearly complete had Spenser been more searchingly examined and had Robert Southwell been mentioned for "The Burning Babe" and "At Home in Heaven." Contemporaneous with the emotional experiences of mysticism ran the intellectual attempt to control nature, first through magic and alchemy, later through modern science. Both interests were cultivated by the academies, which originated in Italy, were interrupted

by the Thirty Years' War, and survived in such modified forms as the Royal Society and the Society of Friends.

During Boehme's lifetime England became the nursery of nonconformist sects, not unlike the academies in their emphasis upon mystical experiences and social reform, and hence well adapted to absorb his teachings. His works, completely published in English between 1644 and 1662, enunciated the philosophical principles implicit in the sects and the academies. Among his distinguished readers were Charles the First, Samuel Pepys, and Sir Isaac Newton, who transcribed passages from Boehme, basing upon them experiments in alchemy. In William Law's works, as well as independently, Boehme's theories influenced the early Methodists. Tracing out the influence of his philosophical ideas upon scientists like Newton, upon religious reformers like Fox and Wesley, upon authors of ideal commonwealths like Samuel Hartlib, and upon political reformers like Sir Henry Vane constitutes the most valuable part of Dr. Bailey's book.

As for its main thesis, the conclusion that Milton knew something of Boehme's work is inevitable in view of his acquaintance with Hartlib, Vane, and Herring, all admirers of Boehme. In some respects Milton's convictions coincide remarkably with Boehme's, notably in emphasizing free will rather than predestination and in regarding Christ's victory over temptation instead of the crucifixion as counterbalancing Adam's fall. In not all cases, however, do Dr. Bailey's quotations prove that Milton learned from Boehme; more than once the quoted opinions are contradictory; Milton's condemnation of false teachers in "Paradise Lost" echoes a passage in "Lycidas" written a decade before Boehme's works began to be published in English; Milton's account of how Lucifer and his followers were turned into snakes shows close parallels with Ovid, Dante, Lucan, and Phineas Fletcher, but no distinctive feature in common with Boehme's brief account.

With a bird's-eye view of romanticism as permeated with a mysticism possibly derived from Milton and through him from Boehme, Dr. Bailey closes her study of an obscure, but important phase of German influence upon English thought.

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Kant's Doctrine of Freedom. E. MORRIS MILLER. London: George Robertson and Company. 1913. Pp. 181.

This little volume is a faithful endeavor to set forth Kant's doctrine of freedom as it originates in the "Critique of Pure Reason," and as it is developed in the "Analytic of the Critique of Practical Reason." The author's sympathies are clearly with the idealism of Green and Caird. The problem of freedom remained for Kant a problem because his method was one of abstract analysis. By avoiding Kant's theoretical abstractions, Green and Caird are able to outline a positive solution for the problem which Kant really leaves unsolved. The author is evidently familiar with a considerable amount of Kant literature, and has succeeded in giving a

consistent, though somewhat laborious, interpretation of the Kantian concept of freedom.

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JOURNALS AND NEW BOOKS

MIND. April, 1915. *Mr. Bertrand Russell on Our Knowledge of the External World* (pp. 145-183): H. A. PRICHARD. - An examination in considerable detail of Russell's views as stated in his "Lowell Lectures" and in *Scientia* for July, 1914. The writer disagrees with Mr. Russell's conclusions. *Lotze's Relation to Idealism* (pp. 186-206): I. I. THOMAS. - For Lotze metaphysical inquiries begin in pluralism; his theory of thought is opposed to idealism, but derived from a development within idealism. He held that the thought constitutive of experience is dependent upon the nature of sense. *Plato and the Tripartite Soul* (pp. 207-221): J. L. SROCKS. - We must amend our account of the origin of Greek ethics. The language of Platonic ethics is prophetic and oracular; the doctrine is mystical and ascetic. Plato owed much to the Pythagoreans, and the attribution to them of the tripartite soul was current in circles not hostile, but friendly to Plato. *Idealism and Religion in Contemporary Italian Philosophy* (pp. 223-239): ANGELO CRESPI. - The leading systems in Italy at present are that of Croce and that of Varisco. Croce's idealism is exclusively historical. History is the process of which philosophy is the rationale. Religion is but an inferior kind of philosophy. Varisco's starting-point and conception of philosophy is that of ordinary idealism. Varisco admits the value of feeling, recognizes only two alternatives, theism and impersonal pantheism, and defends the option for theism. Discussion. *Dr. Schiller on William James and on Realism* (pp. 240-249): R. B. PERRY. - Continues the discussion of points raised by Schiller in his review of Perry's "Present Philosophical Tendencies." *Critical Notices. New Books. Philosophical Periodicals. Notes.*

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NOTES AND NEWS

THE following is an extract from a letter written by Professor Bergson to Professor H. M. Kallen, in reference to Professor Kallen's book, "William James and Henri Bergson."

"Pour ce qui est de l'exposé de mes vues, je vous remercie d'abord de les avoir rapprochés de celles de James; vous ne pouviez pas me faire un plus grand honneur. Je vous remercie ensuite de m'avoir étudié si sérieusement et si impartialement. Il vous était beaucoup plus difficile d'entrer dans mes vues que dans celles de James, puisque nous n'avons pas eu occasion d'en causer ensemble: vous ne vous étonnerez donc pas si je vous dis que, sur bien des points importants, il me serait impossible d'accepter tout-à-fait votre interprétation. Je ne puis malheureusement pas, aujourd'hui, entrer dans le détail. D'une manière générale, vous avez exagéré, ce me semble, ce qu'il peut y avoir de transcendant dans la doctrine. Vous avez sans doute raison de dire que je me rapproche plus que James de la métaphysique traditionnelle; vous avez même deviné ma sympathie pour Plotin,—sympathie dont je n'ai jamais eu occasion de parler dans mes livres, mais que les auditeurs de mes cours connaissent bien. Mais je crains que vous ne vous soyez mépris sur la relation que j'établis entre la durée et "l'éternité." Je ne ramène pas la durée à "l'éternité" des anciens philosophes; bien au contraire; c'est "l'éternité" des anciens philosophes que j'ai cherché à faire descendre des hauteurs où elle siégeait pour la ramener à la durée, c'est à dire à quelque chose qui se grossit, s'enrichit, et se crée soi-même indéfiniment. D'autre part, il n'est pas exact que j'admette l'existence d'une réalité absolue, distincte des apparences, à la manière de la métaphysique traditionnelle. Au contraire, selon moi, tout ce que nous percevons est une réalité absolue. Seulement, c'est une réalité que nous devons compléter de plus en plus en renonçant à certaines habitudes, toutes pratiques, de *rétrécissement*, et c'est à connaître cette réalité plus complète que la réalité ordinaire (mais non pas d'une autre nature, puisqu'elle contient cette réalité ordinaire comme le tout contient la partie) que la philosophie doit viser. Il n'est pas exact non plus, de dire que je pose, à la manière de la métaphysique traditionnelle, une *unité* antérieure à la *multiplicité*. Au contraire, unité et multiplicité distincte ne sont pour moi que des *vues* prise sur quelque chose qui participe des deux sans être l'une ni l'autre, et que j'appelle "multiplicité qualitative," ou "multiplicité de pénétration réciproque," ou "durée." Tout mon effort depuis le jour où j'ai commencé à philosopher, a porté sur cette considération d'une multiplicité *sui generis*, que les philosophes ont toujours laissée de côté parcequ'ils n'apercevaient de la durée que son symbole spatial, et qui est la réalité même. Il est vrai que pour rentrer dans cette durée, et par conséquent pour se représenter cette multiplicité, il faut faire un effort de dilatation intellectuelle, ou plutôt psychique, qui aboutit à la rupture de beaucoup de nos cadres.

"C'est vous dire que, selon moi, il y a moins de distance que vous ne le pensez entre les vues de James (surtout celles qui lui sont venues à

mesure que les difficultés des problèmes métaphysiques le préoccupaient davantage) et les miennes. Vous avez raison d'affirmer que James a été un démocrate en métaphysique; mais sa démocratie n'allait pas jusqu'à l'anarchie, et c'est une espèce d'anarchisme que vous lui prêtez. James, en profond philosophe qu'il était, ne pouvait pas n'être pas frappé du fait que nos mathématiques sont applicables aux choses, et même qu'elles s'y appliquent de plus en plus exactement à mesure que nous approfondissons davantage le détail de la réalité. Nous faisons des calculs fondés sur le passé, et l'expérience a venir les vérifie, comme si les choses étaient véritablement composées d'atomes et de corpuscules soumis aux lois de la mécanique. C'est cette mathématique inhérente aux choses que Berkeley et Hume n'avaient pas pu expliquer. S'ils l'avaient expliquée, le Kantisme ne se serait probablement pas produit, car il aurait été inutile. Kant a justement cherché à expliquer comment les mathématiques sont applicables à un monde tel que se le figure l'empirisme radical; mais, pour cela, il a été obligé de réduire l'empirisme à une connaissance de "phénomènes," et de supposer derrière les phénomènes des "choses en soi," situées hors du temps. Or, un des principaux objets de mes travaux a été de donner la solution de ce même problème à moins de frais que ne l'avait fait Kant, sans supposer de "choses en soi" distinctes des phénomènes, et en montrant que les phénomènes, pris dans leur intégralité, c'est-à-dire replacés dans la "durée réelle," sont véritablement un absolu,—cet absolu étant alors d'une telle nature que, nécessairement, il se prête à la connaissance intellectuelle ou mathématique quand il est matière, à la connaissance intuitive quand il est vie ou esprit. Ou je me trompe beaucoup, ou c'est là qu'il faut chercher la véritable raison de la sympathie de James pour mes travaux, surtout pour les conclusions générales de l'"Evolution créatrice." Ce n'est pas seulement, comme vous le dites, à la théorie du concept qu'il donnait son approbation. Il voyait sans doute aussi que c'est dans cette direction-là qu'il faut chercher la clef de l'accord entre l'expérience et la science.

"Certainement, James était arrivé à son "stream of consciousness" par des voies purement psychologiques. Certainement aussi, c'est par la critique de l'idée mathématique et physique de temps, et par la comparaison de cette idée avec la réalité, que j'ai été conduit à ma "durée réelle." Cette différence d'origine explique la différence de fonction de la "durée" et du "stream." Le "stream of thought" a surtout une puissance d'explication psychologique, tandis que la "durée" a principalement une puissance d'explication épistémologique ou, si vous voulez, métaphysique. Mais entre ces deux manières de voir il n'y avait pas opposition; il y avait plutôt "harmonie préétablie."

"En résumé, il me semble que vous me poussez, moi, beaucoup trop dans le sens de l'unité, de la "monarchie," et que vous poussez trop James dans le sens d'une multiplicité qui serait absolument "anarchique" et, par là, discontinu. L'intervalle devient alors si considérable que vous apercevez nécessairement des contrastes irréductibles."

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

THE RELIGIOUS IMPLICATES OF BERGSON'S DOCTRINE REGARDING INTUITION AND THE PRIMACY OF SPIRIT

THE primacy of spiritual energy in the universe was not seriously questioned among men until the nineteenth century began to manifest a new emphasis in thought. To be sure, the daily behavior of man has always registered the close and inescapable connection existing between human life and material things. But in theory, at least, both the masses and the classes, a few notable exceptions apart, accepted as basic facts the superiority of the psychic over the material and the non-derivability of the inner life from any material cause. The existence of God as an independent spiritual reality; the real and distinct existence of the individual soul; the primacy, in the universe, of God and of the soul; these things were not fundamentally doubted by many.

The nineteenth century, however, was marked by the enthronement of law as its god; the law of the uniformity of nature, of the conservation of energy, of the indestructibility of matter, of evolution. Under the rigorous and vigorous pressure of a scientific ideal, enthusiastically held and unremittingly applied, everything could be explained. Everything *would* be explained when we knew enough. By "explanation" was meant the tracing out of proximate and remote causes in nature, or in history, these causes constituting the "determining" causes of the things thus supposed to be "explained."

The zeal and effectiveness with which this scientific determinism was taken up and applied exerted an immense influence upon philosophy, upon men's fundamental views of life. Widespread doubt and disbelief arose regarding the existence and worth of spiritual realities independent of and underivable from material elements. Champions of idealistic and of specifically religious views of life attempted to come to honorable and satisfactory terms with the new tendency, seeking to harmonize the situation by accepting a deterministic process, but interpreting it in an idealistic way.

Towards the end of the century, however, breaks began to appear in the iron ring of determinism encircling human life. These breaks

were caused by blows delivered from various angles and by different kinds of hammer-wielders. Among them were vitalistic biologists, pragmatic philosophers, and those psychologists who believed in and applied the doctrine of the subconscious self. The conviction grew that we must draw a clearer line of demarcation between organic and inorganic science; between the physical and the social sciences. It was seen with increasing clearness that determinism has its limits and that deterministic theories must be made to keep their place.

The outstanding protagonist of this more recent viewpoint is assuredly Henri Bergson. He represents primarily just this spontaneous reaction against extreme scientific and philosophical intellectualism. Years ago he came to feel that the exaltation of determinism had, in opposition to many stubborn facts, reduced free-will to an illusion, and spiritual activity to a mere puppet-show.

This revulsion of feeling on Bergson's part was due largely to his biological studies. He saw that, in the formation of philosophical systems, the physical and mathematical sciences had always played the dominant rôle. His thesis, on the other hand, was that life would be better understood by approaching it through the sciences of life rather than through the sciences whose subject-matter is inorganic, or which rest on pure logic. Thus his philosophy, up to the present, rests upon biology and psychology rather than upon physics and mathematics as, for example, was the case with Kant. The result has been his exaltation of intuition, free-will, and the primacy of spiritual force.

As René Gillouin says: "Bergson holds that we live in the Absolute, whether by thought or by intuition. In its own domain, matter, science touches the Absolute. In its own domain, life, intuition touches the Absolute. Determinism is an excellent *method*, within certain limits. It has been extended beyond its proper limits and has been made ruinous by being set up as a fundamental doctrine. . . . Bergson ends with a Gnosticism at once new and traditional—new in its means and methods, traditional in its ambitions, for the common ambition of philosophers has been to transcend the conditions of human life."

Bergson himself says: "The reasons that determine us are determining only when the act is accomplished—the creation and the free-will are in the process by which these reasons have become determining."¹

Strange as it may seem to the casual reader of Bergson, he has been charged with materialistic tendencies. These, of course, must be unconscious tendencies, for Bergson's own language is explicit

¹ H. Bergson, in an article entitled, "Liberty," in *Reports of the French Philosophical Society*.

enough. It is maintained that one center of this unconscious materialism is his theory of "pure perception." This is the theory by which, in picturing the building up of conscious life, he brings, or tries to bring, mind and matter together. It is held that the process Bergson here postulates leads straight to a materialistic explanation of mental phenomena.²

Bergson admits gladly the important part the material universe plays in the *development* of consciousness, but I can not see in his theory of "pure perception" any suspicious trace of a materialistic view of the *origin* of consciousness. Besides this there are weighty considerations which fall on the other side of the balance.

Karl Bornhausen, who has given us one of the sanest and most illuminating of the many discussions brought forth by Bergson's philosophy, makes this charge clearly and explicitly.³ On religious grounds he is sympathetic with much that Bergson says, and yet he voices a warning which has to do with a concealed materialism.

Bornhausen says: "This philosophy is significant for the grounding of religion, for religion represents in a special way that phase of life which is accessible to intuition alone." He quotes Bergson's answer to a question put by Frédéric Charpin: "Religion is a simple, unique element of life, and will not disappear since it is more feeling than thinking, and its object in part resides within itself, as effect as much as cause." Again Bornhausen says: "His idea of intuition is of great significance for religion, but to make the life impulse the object of religion is to kill religion. We must exercise great caution in the face of this philosophy lest we lose our individual superiority over nature, our freedom, and the subjectivity of our personal faith."

These statements contain a criticism best expressed in the phrase, "lest we lose our individual superiority over nature." Here I must remind my readers that we are not engaged in a critique of Bergson's philosophy. I take up this point merely because the fear Bornhausen here expresses is, as a matter of fact, a fear of materialism. If his fear is justified, he himself should modify the favorable estimate of Bergson's religious influence which he gives elsewhere in the same treatise. If this fear is justified, then, no matter what Bergson himself may say or think, his real emphasis is not upon the primacy in life of an original, spiritual Force; his ultimate influence will make against it.

I do not think the fear is justified. Is it true that "to make the life impulse the object of religion is to kill religion"? As a matter of fact, the god of every religionist is looked upon by him as the life

² Cf. Bergson's "Matter and Memory."

³ Karl Bornhausen, "Die Philosophie H. Bergsons und ihre Bedeutung für den Religionsbegriff," *Zeitschrift für Theologie und Kirche*, 1910.

impulse and is often worshiped mainly as such. What Bornhausen probably means is, that Bergson makes the life impulse, *conceived of as physical*, the object of religion. If this were true, then the result would indeed be materialism, and the loss of any higher form of religion. But it is not true.

We must remember that Bergson's ideas are, as yet, only partially worked out—or, at least, only partially published. Thus far they have been grounded almost exclusively upon biological and psychological phenomena. The biological basis of "Creative Evolution" accounts for the physical emphasis so prominent in that book. The future works which are promised us will have to give greater attention to the sciences of *human* life, especially to the science of history. In estimating Bergson this situation must always be borne in mind.

But it can not be said that, even in his already published works, the vital impetus has been identified with a purely physical life impulse. Bergson tells us that he considers life possible on other planets and in other solar systems. This non-earthly life would use chemical elements different from those utilized by us, and hence would differ in form from our known forms of life. He considers this inference a fair one because life depends upon the vital impetus; and not upon the chemical changes utilized. In fact, he says, life might dispense with organized bodies, properly so-called.⁴

These ideas convey a pronounced non-physical implication, but they do not completely prove my point. What does prove it is Bergson's repeated insistence that this life impetus, on which all these forms of life depend and from which they arise, is *psychical*. Supra-consciousness is at the origin of life. Man owes his superiority indeed to his superior brain, his powers of language, and his social system, which stores effort as language stores thought; but all these are themselves only the external manifestations of an inner and spiritual achievement. They are the servants of the vital impetus, and the vital impetus is essentially a spiritual force. The success of man is a spiritual success. In this sense, man is truly the end of evolution. That is, he alone achieves that freedom which is its goal. The real evolutionary process is a psychic process of which the evolution of organic forms is merely one result, although a very important result. It is as if a superman, that is, a supernatural, cosmic being, had sought to realize himself. Thus the destiny of human consciousness and of the human soul is not bound up with the destiny of cerebral matter.

This is Bergson's position. To identify his "vital impulse" with

⁴ Cf. Bergson's "Creative Evolution," English translation by Mitchell, pages 255-257. Also Bergson's "Presidential Address" before the Society for Psychical Research.

a purely physical principle is thus clearly a violation of plain fact. Whatever we may think of the theory, the theory itself is clear; at least in its main outlines. Mind and matter alike go back to one, great, original source which Bergson himself, over and over again, characterizes as spiritual and psychic.

We have from Bergson a number of interesting statements regarding belief in immortality, and they support our thesis in a very clear and emphatic way. I shall quote only two of these statements. He says:

“If we can prove that the rôle of the brain is to fix the attention, of the mind on matter and that by far the greater part of mental life is independent of the brain, then we have proved the likelihood of survival: and it is for those who do not believe it to prove that they are right, not for us to prove that they are wrong.”⁵

“On the other hand, when we see that consciousness, whilst being at once creation and choice, is also memory, that one of its essential functions is to accumulate and preserve the past, that very probably (I lack time to attempt the demonstration of this point) the brain is an instrument of forgetfulness as much as one of remembrance, and that in pure consciousness nothing of the past is lost, the whole life of a conscious personality being an indivisible continuity, are we not led to suppose that the effort continues *beyond*, and that in this passage of consciousness through matter (the passage which at the tunnel’s exit gives distinct personalities) consciousness is tempered like steel, and tests itself by clearly constituting personalities and preparing them, by the very effort which each of them is called upon to make, for a higher form of existence?

“If we admit that with man consciousness has finally left the tunnel, that everywhere else consciousness has remained imprisoned, that every other species corresponds to the arrest of something which in man succeeded in overcoming resistance and in expanding almost freely, thus displaying itself in true personalities capable of remembering all and willing all and controlling their past and their future, we shall have no repugnance in admitting that in man, though perhaps in man alone, consciousness pursues its path beyond this earthly life.”⁶

Do these statements point in the direction of materialism or in the opposite direction?

Again, Bergson recognizes the practical dualism existing between mind and matter;⁷ between soul life and brute things. He also traces

⁵ Bergson in *The Literary Digest*, March 1, 1913.

⁶ Bergson, “Life and Consciousness,” *The Hibbert Journal*, October, 1911.

⁷ I do not agree with those who hold that Bergson’s theory of matter is somewhat Kantian. The categories of the intellect do not create phenomenal

the presence of this dualism far back, almost, but not quite, to the very beginning of things. This dualism is early, but not ultimate. It resolves itself into an ultimate unity in that both elements originally spring from one source; *and that source is psychic.*⁸

He is also reported to have said:⁹ "This source of life is undoubtedly spiritual. Is it personal? Probably. There are not sufficient data to answer this question. Professor Bergson is inclined to think it is. It seems to him that personality is in the very intention of the evolution of life, and that the human personality is just one mode in which this intention is realized. It is, therefore, he thinks, very probable that the spiritual source of life whence our personality springs should be personal itself. Of course, personal in a different way, without all those accidental traits which in our mind form part of personality and which are bound up with the existence of the body. But personal in a larger sense of the term—a spiritual unity expressing itself in the creative process of evolution."

But there is another point at which Bergson upholds the primacy of the spiritual quite as strongly as he does in accounting for the origin of evolutionary processes. That is, where he maintains the distinct existence of the soul of the individual. Mechanistic, deterministic science has driven all forms of spiritism or, as McDougall¹⁰ calls it, "animism," into the out-of-the-way caves of human belief. The "psychology without a soul" has been almost triumphant, leav-

matter; matter exists independently of the intellect, but in a more fluid, less clear-cut form than that in which we ordinarily think of it. For practical reasons, according to Bergson, the intellect cuts out certain cross-sections of the actual material world, sharpens their outlines, and solidifies their content. These cross-sections are like cinematograph pictures, held fixed for observation and for practical manipulation. Matter itself overflows these intellectual pictures and is more fluid than they. Still, in comparison with the "*elan vital*," it is relatively fixed and tends continually towards greater inertness. This is the matter of which I am speaking.

⁸ In view of recent theories of matter, I may be unwise in making the following observation. Also, I am not unmindful that ignorance of the "how" of a supposed fact does not necessarily damn the fact. But I must confess that I do not see how Bergson gets his matter out of this original, spiritual, psychic force. It is difficult to understand how the original jet of spiritual spray (to use Bergson's own figure) condensed into matter. Why did it not merely dry up or, perhaps, simply go on spraying? However, I wish to repeat that we are not attempting a criticism of the philosophy as such. Whether or not we understand his "how" or agree with his "what," Bergson resolves all into the original life impulse and characterizes that impulse as spiritual, psychic, conscious. In this regard, therefore, we see that the Bergsonian philosophy upholds the primacy of the spirit.

⁹ Louis Levine, "Interview with Bergson," *New York Times*, February 22, 1914.

¹⁰ William McDougall, "Mind and Body."

ing us psychology but no soul. As McDougall says, this issue is crucial for religion. No soul, as a distinct spiritual entity, no religion.

It is Bergson's theory of memory which comes under consideration here, for his doctrine of the reality of the soul's existence is based upon this theory. Whatever we may think of it, the theory at least gives us further proof of Bergson's insistence upon the fundamental primacy of the spiritual element in all life. Let us briefly sketch its essential features.¹¹

Perception and memory differ in nature and kind. The past is only idea; the present is *ideo-motor*. We know matter only in part, but we know it *directly*. Hence matter can not exercise powers different in kind from those we perceive; and hence it can not create consciousness. The only way to refute materialism is to show that matter is precisely what it appears to be, and hence the spiritual life of man is an independent reality. Memory is in principle a power absolutely independent of matter. The brain is the advancing point of past representations pushing into the future. Destroy the brain and these representations are not destroyed, but their action over matter is gone.

Bergson distinguishes three kinds of memory; "habit memory," which is largely physical, the result of motor reactions; "representative memory," which is conscious, and plays a large part in directing action; and "pure memory" which is really an unconscious psychic state. This last is really our "soul" and is what we often describe as our "character." It gathers up all that is significant in our past, like a rolling snowball, and is always present in all our decisions, whether we are conscious of it or not. That is why it is fair and useful to follow the common-sense rule of "judging a man by little things." This "pure memory" or "the soul," as distinguished from what we often call "memory," is essentially independent of matter; is powerful over matter through the medium of brain and body; and will probably survive the body. Through it communication takes place between man and the supra-soul of the universe, for, as Bergson puts it,

"Pure Memory": Spirit :: Perception: Matter.

According to Bergson, therefore, the soul of man is a reality. It is a towering citadel of spirituality. It is essentially independent of matter and superior to it. It is also distinct from the supra-consciousness, or vital impetus, as well as from other individual souls. In spite of the separateness of these lesser individualities from one another and from the cosmic soul—a separateness due probably to the action of opposing forces—the cosmic soul is the ultimate source of

¹¹ Cf. Bergson's "Matter and Memory."

all. Thus Bergson again sounds the note of the primacy of the spirit in no uncertain way. The individual soul *is*; it is not subject to matter nor derived from it; it points back to a great, original, psychic origin.

The phases of Bergsonian thought which we have been considering have evident religious and ethical value. W. Scott Palmer draws from them the following inferences: "Permeation, communication, the gift of the Spirit and the mutual giving of God and of men is the world's truth; all else is mere expediency for action. . . . There is no real isolation between the spirits of men or between God and man. . . . (The streams of life) come from God, they are of Him, though each has its personal owner. . . . God Himself is 'closer to each than breathing, nearer than hands and feet.' . . . But He is not immanent in the stream. He is transcendent to it and personally related with it."¹²

In various ways many other men are reaching similar conclusions based on Bergsonian data. Bergson himself has once or twice broken the silence he has usually maintained regarding religious topics. To Levine he expressed the opinion that "the individual can not be guided by social ethics alone (*i. e.*, utilitarianism) and the craving for religious experience will remain and probably grow stronger as time goes on. The religious feeling is the sense of not being alone in the world; the sense of a relationship between the individual and the spiritual source of life."¹³

Let me repeat. It is undeniable that the elements of Bergson's thought which we have been discussing are clearly compatible with religion; in so far, then, they are therefore compatible with the Christian religion also. His conclusions not only lend themselves to a theistic interpretation of life, they almost force it upon one. Alongside of his tendency towards theism lies his marked emphasis upon the spiritual distinctness of the individual; upon the reality of the soul. It only remains to bring these two together—the spiritual fountain head and the individual will—and religion is assured. This might be done without violence, and without necessarily departing from a Bergsonian basis even if there were no corresponding principle of connection in Bergson's system. There is such a principle, however, and it constitutes one of the most striking and important features of the whole philosophy—the principle of intuition.

But before we turn to this new phase of the subject, I wish to add a word regarding the ethical value of Bergson's doctrine of the soul. The soul, like human freedom, is to a large extent achieved. It is

¹² W. Scott Palmer, "A Christian Study Aided by Bergson. Presence and Omnipresence," *Contemporary Review*.

¹³ Louis Levine, in the *New York Times*, February 22, 1914.

being built up bit by bit with every new development of the individual's life. Nothing essential is lost; and the soul is really the compounded spiritual result of this whole process. It begins almost as a bare capability, and it ends—where? We know not; but it may grow towards purer and purer spirit.

It is evident that the part played by individual choice, in this matter of soul-building, is very great. The stream of spirit life is there to be drawn on, but a vast, inert mass of matter is also present. Like the vital impetus itself, each individual must meet obstacle after obstacle. The quintessence of this fight is the struggle for more soul; for soul-freedom over against mechanism and formalism. As "pure memory" is connected with "habit memory" through conscious "representative memory," so the soul is connected with the inert mass of dead matter through the inevitable activity of the present. A let-down—inertia, laziness, deliberate rejection of the higher—means the increased materialization of the soul; its diminution; its loss. Thus, in a sense, according to Bergson, one has a soul from the very beginning of life. In another sense, equally real, one must *acquire* his soul by active, idealistic effort. In every way the ethical appeal of this conception rivals in force the religious appeal already seen to be so powerful.

As Bornhausen says, "Bergson's idea of intuition is of great significance for religion." In itself and through its natural consequences it is perhaps the most significant phase of Bergson's thought in the direction of religion. The discussion of this fundamental Bergsonian doctrine may well be prefaced by the words of Goethe, "Animated enquiry into cause does infinite harm";¹⁴ and by Plato's characterization of metaphysics, "It can not be put into words as can other enquiries, but after long intercourse with the thing itself, and after it has been lived with, suddenly, as when fire leaps up and the light kindles, it is found in the soul and feeds itself there."¹⁵

According to Lindsay, "Plato and Bergson both insist that true knowledge must dispense with symbols—it is immediate apprehension, an act of the spirit. They differ in that Plato took the mathematical universal as the type of all universals and hence denied the reality of time and change. Kant and most modern thinkers concern themselves with applied science and for them the test of truth is not in its own apprehension, but in results, coherency, usefulness. Bergson follows Plato in this regard. In the sciences of life, the unpredictable individual compels a greater use of intuition and the subor-

¹⁴ The quotation, as given, is from Chamberlain's "Foundations of the Nineteenth Century."

¹⁵ Cf. Plato's Epistles, VII: 341, 344. Quoted by Lindsay in his "Philosophy of Bergson."

dination of the mathematical. But this does not mean giving up science and falling back on feeling. Intuition must supplement and not dispense with science. Metaphysics differs from science in that it attempts to apprehend reality for itself and not for any practical use. This requires the sympathy of 'long experience' (*op. cit.*). And again, "Intuition is not a method practised by turning away from the sciences, but somehow by completing them. Bergson says, 'If by mysticism be meant a reaction against positive science, the doctrine which I defend is in the end only a protest against mysticism'" (*op. cit.*).

These quotations serve not only to silence those who accuse Bergson of anti-scientific bias, but also to indicate the true nature of intuition in the Bergsonian sense. He himself has illustrated it by means of the experience of an author who, after long study and investigation (scientific research), seeks to put himself at the heart of his subject by a supreme act of concentrated sympathy and imagination. Bergson also rightly points out the essential part played by intuition, thus understood, in the progress of science. In fact, all new discoveries, all progress, have been due to this gift. It is fruitful, however, only when it springs out of a wide and intimate knowledge of fact. Otherwise it is empty, barren, and purely emotional. Bergson's own words are: "Intuition and intellect do not oppose each other, save where intuition refuses to become more precise by coming into touch with facts scientifically studied, and where intellect, instead of confining itself to science proper, combines with this an unconscious and inconsistent metaphysic which in vain lays claim to scientific pretensions."¹⁶

All great philosophical systems have sprung out of great intuitions. Too often, however, their real source has been forgotten, and they have been explained solely on the basis of the intellectual elaborations necessary for the sake of presentation and defense. Thus, while Bergson maintains that dialectic is necessary to put intuition to the proof and to break it up into concepts for the sake of propagation, he also insists that intuition is more fundamental. It is really instinct become self-conscious. Instinct, as seen in the hymenoptera, prolongs the work of organic organization and is next to very life itself. Make this instinct conscious, that is, turn it into intuition, and we can think life. Otherwise not.

As Carr describes it, "Philosophy deals with life which undergoes real changes in time. If we had intellect alone, life would be unknown and unknowable. We must install ourselves in the life process and use intuition instead of intellect. . . . This is not mysticism. It is based on fact and its philosophical analysis is interpre-

¹⁶ Bergson, "Life and Consciousness," *Hibbert Journal*, October, 1911.

tation of ordinary experience. According to Bergson, this intuitive faculty lies in the fringe of consciousness surrounding our intellect, which is limited to practical purposes."¹⁷

The method, therefore, by which alone we may get direct contact with the real of the whole, is the same as that by which we come into contact with fragments of reality in separate spheres of investigation. The method of the author with his subject, the scientist with his science, is the method to be followed by the man seeking the final reality of the universe. He can not neglect facts. His intellect must busy itself collating, analyzing, applying. Without this all would become empty emotionalism. But this alone will not lift a man above his bare facts. By intuition he must plunge into the stream of fact and "get the feel of it." This is not the blind instinct of the animal. The "feel" of the animal is vivid, but so limited as to be useless for any purpose like that now under consideration. It is man alone who, sharing instinct and intellect, can consciously apprehend a wide range of fact, and thus get a survey broad enough to enable him to formulate views regarding the final real. We have atrophied our gift of instinct by over-emphasis of intellect. We must now exalt the despised faculty without losing what intellect has gained for us.

Jacks asks: "Must the meaning of life always be expressed in words? Is it not often expressed by action? by being? We do not want a photograph of experience. We want our experience enlarged and deepened. But we need philosophy to expose false philosophies and to lay bare the ultimate fact. Its function is to enforce the attitude of meditation—not to capture reality, but to free it from captivity. Start with the notion that it is you who explain the object, and not the object which explains itself, and you are bound to end in explaining it away. It is one thing to discover fixity in experience, but another thing to confer fixity on experience by a form of words. Reality must be left to tell its own story in its own way."¹⁸

This, I take it, is truly Bergsonian. It is a sort of philosophic quietism, but, with Bergson, it is superimposed upon a very active and arduous intellectual task and in itself requires a herculean spiritual effort. One feels, in considering Bergson's theory of intuition, that fusion of realism and idealism which he claims to effect. It is not only real work, but a real object directly and actually apprehended. And yet this is not accomplished "without idealism in the soul," as Bergson says, and the product is an ideal, a spiritual product. "To get a pure perception of reality, we must have a certain immateriality

¹⁷ H. W. Carr in the *Hibbert Journal*, July, 1910.

¹⁸ L. P. Jacks, "The Alchemy of Thought."

of life, *i. e.*, idealism. Realism is in the work when idealism is in the soul."¹⁹

It has already become evident that Bergson's teaching regarding intuition has points of contact with mysticism. Muirhead says, "Bergson has a practical emphasis, and yet the principle of spirit is a will to know—not by logic, to be sure, but by intuition. Here he is more in line with Plotinus and the Gnostics than with the Pragmatists."²⁰ Slosson points out that the study of Bergson has turned his modernist Catholic admirers to a study of the saints of mysticism. Mories remarks: "However we may name the eternal principle of the universe, we ourselves (according to Bergson) are part and parcel of it and therefore in most direct contact with it. This is against all 'relativism,' and is full of constructive promise for religion. The whole trend of recent thought has been toward an attitude more fundamental than formal religion, that is, toward mysticism. Lay the spirit open. . . . Bergson gives an exposition of the empirical, psychological basis of ecstasy."²¹ To quote Macintosh: "Bergson is especially sympathetic with religious mysticism. Bergson says, 'The true metaphysic will be an immediate vision of reality and the mystical experience is certainly that.'"²²

Listen to Bergson's own words as reported by Levine:²³ "Is it not remarkable,' Bergson asked, 'that the mystics throughout the ages, without knowing one another, came to such similar conclusions merely on the basis of their inner experience? Now what the mystics tell us about themselves is extremely interesting and of great value for the understanding of the life of the spirit. It is ridiculous to dismiss all this with a shrug of the shoulders, as so many are inclined to do in our so-called positive age. On the contrary, their clue should be taken up and followed, and the chances are that the deeper we plunge into our inner experience, the greater the treasures we shall discover there.'"

There is a mystic element in all religion. In fact, the religious act itself is essentially mystical. This naturally appears more markedly in those of an emotional temperament than in those of the practical or of the intellectual type. But it is present with these also, even if under cover, provided real religion is there. If this be granted, it is also evident that a philosophy which, by common consent, leans strongly towards mysticism, must be not merely com-

¹⁹ Quoted from Bergson by E. E. Slosson in his "Prophets of To-day—Bergson." *The Independent*, June 8, 1911.

²⁰ Muirhead's review of Bergson's work in the *Hibbert Journal*, July, 1911.

²¹ A. S. Mories, "Bergson and Mysticism," *Westminster Review*, June, 1912.

²² Macintosh, "Bergson and Religion." *Biblical World*, January, 1913.

²³ Levine's interview in the *New York Times*, February 22, 1914.

patible with religion, but also highly favorable to it in this respect at least.

Such is the case with M. Bergson's philosophy. The way in which the individual soul, according to Bergson, grasps the ultimate (the vital impulse), is the very way by which the same soul seeks and finds his religious goal—God. "Oh! that I knew where I might find Him!" "Lift up your eyes unto the hills. From whence cometh my help? My help cometh from the Lord who made heaven and earth." "As the hart panteth after the water-brooks, so panteth my soul after thee, O God." "He giveth power to the faint; and to him that hath no might he increaseth strength. Even the youths shall faint and be weary, and the young men shall utterly fall: but *they that wait for Jehovah* shall renew their strength; they shall mount up with wings as eagles; they shall run, and not be weary; they shall walk, and not faint." "In Him we live and move and have our being."

Faith, defined in a way compatible with the Bergsonian position, could be no formal thing, no merely intellectual proposition. It would be an act, or rather an attitude, of the whole life, by which the soul would become fused with its spiritual source and Creator, though remaining consciously distinct from that source. The good element of pantheism would thus be preserved, in that the all-pervasiveness of divine life would be recognized; but the harmful identification of God with nature *in toto* would be cast aside.

"I am the vine. Ye are the branches: he that abideth in me and I in him the same beareth much fruit: for apart from me ye can do nothing." Applying these words to the relationship between man and God, a religious Bergsonian could honestly repeat them; in fact they would express his position completely. The filial relationship between man and God, pictured by Jesus in his teaching, is one of trust and communion as between son and father; this teaching is thoroughly compatible with Bergson's doctrine. Paul's mystical nature is well known and his conception of faith is exactly this mystical fusion between the believer and his object of worship.

But many will grant all this and yet mistrust Bergson and his religious influence *just because* of this pronounced mystical emphasis. These critics would point out the weaknesses of religious mysticism—its vagaries; its self-centeredness; its flight from the world; its unethical or even anti-ethical tendencies. This objection is similar to that leveled at Bergson's supposed anti-scientific trend. According to that criticism, his doctrine of intuition is opposed to intellect and to all science. According to this criticism, the effect of

Bergson's influence will be an unfortunate obscurantism; a return to a riot of mystical raptures which will be harmful to religion in the long run, because unbalanced and possibly anti-ethical.

I have already indicated, somewhat at length, how groundless these extreme charges are. Doubtless those who make them divine correctly a tendency in Bergsonism which should be watched and controlled. But Bergson himself is keenly alive to this need. His repeated emphasis upon the necessity of scientific investigation is supported by his own extended labors in the scientific field. His whole philosophy rests upon the basis of carefully investigated scientific fact. He knows that the "inner light" is often deceitful above all things, and he is insistent that intuitions shall spring out of fact and not out of abnormal imagination merely. These intuitions, also, must be tested and verified by long and arduous scientific application to things as they are. While on his lecture tour in the United States, "he said most explicitly that, notwithstanding his high valuation of intuition, he thought it should always be tested by verification; regarding intuition as a valuable guide-board, but one that, like other guide-boards, might prove wrong."²⁴

Over-subjectivism in religion would not be an inescapable corollary of Bergsonism. History would necessarily have an important place in any truly Bergsonian religious viewpoint. The way by which Bergson himself arrived at his "intuition" of creative evolution was the way of natural history. As Loveday says, "The original Impulse may be understood by taking a synoptic view of its actual developments. The complete interpretation of ultimate reality presupposes a complete natural history and Bergson does not pretend to do more than sketch the general outlines of the scheme."²⁵

For these reasons we are safe in predicting that Bergson's promised discussion of religion, when it comes, will be largely historical. The faith he will at least allow, and will probably plead for, will not be a mystic faith of a purely subjective kind; but a mystic union with an object of worship increasingly made clear in the development of human history. The Bergsonian mystic would and should have a scientific filling for his mysticism. His mystic intuition, or faith, must spring out of facts and be tested carefully by them.

Against this sort of mysticism there is no valid objection. In fact, it is just this element we now so sorely lack and need. It is the only thing which can enliven the soberness and soften the hardness of those who are too exclusively intellectual, or too predomi-

²⁴ I am indebted to Mr. Henry Holt for this particular statement, which Bergson made to him personally. Compare also Mr. Holt's book, "On the Cosmic Relations," Vol. I., page 454.

²⁵ T. Loveday, "Evolution Creatrice," in *Mind*.

natingly practical. Besides, mysticism has always been an antidote for legalistic and absolutistic stagnation. The reaction against it has resulted in part from the lack of balance of the old-style mystics. This reaction has cut off some from the church, and others from religion itself. For still others it has diminished the real solace and stimulus derived from their professed faith. Bergson's philosophy smoothes the way for a revival of mysticism in religion, but, if his own method be sincerely followed, it will be a controlled mysticism whose subjective ecstasy will be directed, modified, and restrained by objective considerations of a scientific and historical nature.

In addition, it is gratuitous to assume that this Bergsonian religion will necessarily be predominately theological and correspondingly non-ethical or anti-ethical. Just how Bergson will ground his ethical system can not now be said with certainty. We may safely assert, however, that a Bergsonian ethic will be forthcoming; that the nature of his thought excludes the probability that this ethic may be fundamentally utilitarian; finally, that it is impossible to conceive how this ethic can escape a certain degree of fusion with religion, especially in the development of the religious idea.

There is room in the Bergsonian view for the "categorical imperative." The vital impulse is under the necessity of propagating itself. Nay more, being psychic and conscious, this necessity gives rise to a feeling of oughtness, for "ought" is the psychic counterpart of the more physical "must." According to Bergson, the vital impetus can not help expanding and extending its influence. It is also a *growing* thing, not static, finished, complete. Therefore, Bergson holds, it is compelled by inner necessity to reach out for more; towards a larger and a fuller life for itself. Since the vital impulse is also, at the same time, psychic and conscious; and since "ought" is the psychic counterpart of the physical "must," may we not conclude that the vital impulse, this cosmic soul, has necessarily a fundamental feeling of oughtness in two definite directions: first, in the direction of self-propagation and, second, in the direction of self-development?

Now the individual soul, according to Bergson, is made of the same cosmic stuff; and, therefore, we may conclude that it shares the compulsions of this same inner imperative. The individual, *qua* individual, knows that he *ought* to maintain and to increase his own spiritual life; he knows also that he *ought* to maintain and to increase spiritual life as such, in others as well as in himself. Thus room is made for a social ethic, and one is reminded of Kant's pronouncement that the test of goodness is the possibility of its universal application.

This formal principle of oughtness, according to Bergsonian teaching, would have to receive its vital, concrete content from experience; not the experience of the individual, merely, but of the race as well, that is, from history. Kant said: "The only good thing in the world is a good will." But what is a *good* will, ultimately? Bergson would say, "The will which seeks to maintain and to increase the vital impetus in its work of freedom and spirituality." Then, just as history—the experiences of the individual and of the race—is showing us what the nature of the vital impetus is, so history (in the same sense) must show us what concrete relations must be set up in order to realize this good will and make it effective. In other words, the conscience can and must be educated through the knowledge and consideration of concrete fact. The resulting concrete relations will constitute positive Bergsonian morality, the ground of whose goodness is the vital impetus itself. The Bergsonian religionist, therefore, who identifies his God with the vital impetus can not separate his religion from his ethics without being inconsistent and without doing serious damage to both.

In conclusion, then, I take it that they alarm themselves unnecessarily who imagine that the Bergsonian trend towards religion, through emphasis on intuition and the primacy of the spirit, is likely to prove unethical or anti-ethical. While this trend is not inescapably Christian, on either its religious or its ethical side, it is not inevitably non-Christian. Indeed, as far as the phases here discussed are concerned, Bergsonism is not only compatible with Christianity, but even favorable towards it.

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SPIRIT, MANA, AND THE RELIGIOUS THRILL

I

NOT a small part of the problems associated with religion fall to the share of anthropology. Among these the relations of *mana* to spirit, of magic to religion, and of *mana* and spirit to magic and religion have furnished abundant data for research and theory.

Before discussing the three problems suggested above, I want to say a few words in justification of the method to be pursued. The favorite topic of classical anthropologists was the search for origins. Hypotheses were piled upon hypotheses to account for the origin of clans, of exogamy, of religion, of totemism. Among these hypotheses some were plausible, others less so, but all suffered from one common

defect: each was designed to give a monogenetic derivation of an ethnological feature, widespread, often universal in its distribution, not uncommonly highly complex in its composition. In the light of modern ethnological criticism the faith in monogenetic theories has been shaken to its very foundations. The conviction indeed is growing that even the simplest institutions must have had multifarious origins in different places and among different peoples. As a corollary of this proposition the ethnologist objects to any specific origin being assigned to an institution among a particular people or in a particular culture unless historic evidence can be adduced to substantiate the contention. It is also being recognized, although not as widely, that so many origins may give rise to an institution that each particular origin must be regarded as accidental, that is, as determined by a fortuitous combination of causes out of a much larger number of possible causes. In the light of these considerations it appears that the search for origins, while beset with often insurmountable difficulties, is also vain: origins are the gossip of science. They are but loosely articulated with the processes and mechanisms of culture. Indeed, if all the origins of human institutions were suddenly revealed, the multicolored panorama would leave us none the wiser.

It is no cause for surprise, then, to find that some of the most critical among ethnologists have turned their backs upon origins and devote their entire attention to the description and analysis of cultural processes and mechanisms, as presented by the data of ethnology.

As against the thinkers of the above type, I contend that the discarding of particular origins as monogenetic explanations of cultural features does not justify a general skepticism towards hypothetical reconstructions of all types. On the contrary, considerable clarification can, in my opinion, be brought to many problems of ethnology by applying to origins a general theoretical mode of reasoning, the aim of which must be, while avoiding all particularistic explanations of origins, to establish a general psychological setting or perspective within the limits of which such origins may be conceived.¹

II

To turn, then, first to the problem of spirit. Ever since E. B. Tylor in "Primitive Culture" announced his minimum definition of religion as "the belief in spiritual beings," if not indeed before

¹ I have attempted to apply the method suggested above in dealing with "The Origin of Totemism," *American Anthropologist*, 1913, pages 600-607, and, in a most tentative way, with the origin of exogamy and endogamy, "Totemism, an Analytical Study," *Journal of American Folk-lore*, 1910, page 247.

that time, students became aware of the universality and unquestioned primitiveness of the animistic faith. Tylor's definition is vindicated by ethnological experience, for the belief both in spirits and religion was discovered even among the most backward tribes whenever due search was made for it. From a theoretical standpoint, however, Tylor's definition is misleading, for a belief in spirits may not, *per se*, be designated a religion. Animism as such is not a religion, but a *Weltanschauung*. The specific channels through which particular groups of men have arrived at the animistic interpretation of nature are no doubt many and varied, but a most general *rationale* of the process may perhaps be given in the following formula. *Whereas the generalized experience of the behavior of things compatible with gross and permanent materiality becomes crystallized in the consciousness of man as the world of matter, the generalized experience of the behavior of things incompatible with gross and permanent materiality finds conceptual expression in the world of spirit.* What particular experiences have led to such dual conceptualization is as readily conceivable as it is unessential.²

While thus the notion of spirit does not in itself involve a religious element, spirit and religious emotion are undeniably associated in all religions, from the most advanced to the most primitive; not indeed in the sense that religious emotion always brings with it the spirit—for this is the reverse of the fact—but in the sense that spirits, as actually found in the beliefs of modern and ancient peoples, are inextricably associated with religion. There can be no doubt, therefore, that this association must have occurred in most primitive conditions. The generalized explanation of the process may be expressed in the following formula: *the same peculiarities in the behavior of things which are responsible for the conceptualization of a world of spirit, are also responsible for the early association of the world of spirit with the religious thrill.*³ Those who have surveyed in thought the types of behavior of things which engendered the no-

² One further point must be noted in justification of the above formula: the material, as well as the spiritual worlds are conceived by primitive man as material. He knows no disembodied spirit. The distinction between matter and spirit is one of degree only: both are material, but the materiality of the spirit is less gross and less permanent.

³ The term "religious thrill" has often been objected to on the ground of its popular-psychological flavor. The objection carries but little weight, if the term can be shown to have an appreciable meaning and to be readily understood. Such, in the writer's opinion, is the case. The term "thrill" denotes a heightened emotional tone, and the high serviceability of the term is based on the fact that it denotes nothing else, so that the terms "religious" or "esthetic" when added to the term "thrill" convey the idea of the more precise content of the thrill, which, when a certain minimum level of definiteness of content is reached, we distinguish as religious or esthetic.

tion of spirit, will readily admit the psychological plausibility of the above formula.

The notion of the religious thrill brings us to the threshold of *mana*.

The term, now well known, was first introduced to ethnologists by Codrington, who found it widely used in Melanesia as a general designation for impersonal magic power or potency. Similar concepts were described among the Sioux Indians of North America, among the Algonkin, Iroquois, and other American tribes. In his account of Loango fetishism Pechuel-Loesche, repudiating the older conception of a fetish as an artificial object possessed by a spirit, substitutes the interpretation of a fetish as an artificial object possessed of magic power, the specific character of which is intimately connected with the form and composition of the object. Since then, careful observers in many lands and among varied peoples have reported the presence in the religions of the peoples they had examined of the notion of impersonal magic power on a par with the belief in spirit. A curious feature about these reports is that the investigators usually display considerable hesitancy when pressed for a more precise description of the *mana* concept as entertained by a given people. The elusiveness of the notion, as described, led some critical students to doubt the very existence of *mana* and to ascribe what they considered as a misinterpretation of primitive belief to the carelessness or incompetence of investigators.⁴ This skeptical attitude seems, however, altogether unwarranted. The independent recording by many trained observers, often at the hand of linguistic and psychological data, of the existence of the *mana* notion seems to the writer to have established beyond all reasonable doubt the actuality of the concept. The vagueness and elusiveness of the concept, the difficulty often experienced of extracting from the native informants a more precise characterization of *mana* or of its distinction from spirit, do not in the least militate against the genuineness of the notion itself. The same applies to the common expedient used by informants, when hard pressed for definite statements, of shifting the conversation from *mana* itself to its concrete carriers, such as objects, beings, spirits. The notion of an impersonal, volatile, highly communicable, highly dynamic power which may associate itself with all things in nature, animate or inanimate, can not, in the nature of the case, possess the definiteness and discreteness of the far more tangible notion of personal spirit. The language, moreover, in which delicate psychological shadings could possibly be expressed by the in-

⁴ Cf. Dr. Paul Radin's interesting remarks in his "The Religion of the North American Indians," *Journal of American Folk-lore*, Oct.-Dec., 1914, pages 335-374.

formant is seldom well, never perfectly, understood, by the investigator. Thus a further element of vagueness is introduced. The notion of *mana*, moreover, possesses on general psychological grounds a high degree of plausibility.⁵

It seems fairly certain that the notion of *mana*, as entertained in most primitive times, must be directly correlated with the religious thrill. The psychological derivation of *mana* may be expressed in the following formula: *The generalized experience of the behavior of things associated with the religious thrill receives conceptual expression in mana.* *Mana* then is the direct objectivation of the religious emotion, it is *that which causes the (religious) thrill.* We have seen before that the religious emotion, and with it, we may now add, the concept of *mana*, supernatural power, must have become associated with spirit from the earliest times. Now, while *mana* thus becomes in part absorbed by spirit, psychological plausibility again suggests the assumption that it does not become wholly absorbed. While spirits are many and varied, in form as well as in function, they all have *mana*, they all arouse the religious thrill; but so also do other beings, things, events, not associated with spirits. Thus the common thrill-producing element in all religious situations, whether centering in a spiritual or a material thing, may be expected to preserve its separate conceptualization on a par with spirit and other carriers of the religious. This psychological deduction *à priori* seems, as shown above, well supported by recorded fact. Thus spirit and *mana* must be characterized as the fundamental concepts of all religion. Born in the thrill-ridden atmosphere of most primitive society, they persist in modern religions. Of little significance as is the chronological viewpoint when ultimate problems are involved, of the two concepts, spirit and *mana*, the latter, as the more general and simple concept, may perhaps claim the right of priority. And indications are at hand that *mana*, while perhaps more primitive than spirit, will also outlive its perennial companion. While spirit is rapidly giving way before the disillusioned gaze of the sophisticated mind, *mana* will live as long as the conceptual power of man reacts to the religious thrill.

⁵ The use of the term *mana* as a general expression for impersonal magic power requires a further word of explanation. While the existence of the *mana*, *wakan*, *orenda*, and other such concepts may be regarded as proved, it does by no means follow that all such concepts, as actually entertained by various peoples, carry exactly the same connotations. The reverse, in fact, is probable. On the other hand, the wide, possibly universal, distribution of such concepts, suggests the prevalence in primitive times of a similar notion, containing the common core of the concepts enumerated above. To that pristine notion the term *mana* may justifiably be applied.

III

Our other problem is the relation of magic to religion. This also has been variously conceived. By some both magic and religion are regarded as primitive and universal; others look upon magic as the more primitive belief, superseded at a relatively late stage by religion. Magic is represented as individual, religion as 'social; magic as a secret set of rites outside the law, religion as the recognized creed sanctioned by public opinion. Magic, finally, is conceived as mechanical, as a sort of primitive science, involving a belief in a natural order and uniformity, religion as postulating human impotence, as involving an emotional attitude towards superior divine powers.

Closer analysis and a deliberate avoidance of purely terminological issues result in the conviction that neither of the above contrasts or distinctions may be accepted as psychologically justifiable. While magic no doubt belongs to the earliest institutions of mankind, religion also is at least coextensive with culture, if only the presence of a religious thrill is made the test of religion. While in later stages of development magic assumes the character of a black art practised by a few and feared by the rest, such is not the nature of primitive magic. The Australian or American medicine-man, the Siberian shaman, are socially recognized figures who differ from the average individual of their social *milieu* only to the extent of being more intense or more intelligent or more skilful. The faith they profess is the faith of the group, and their art is shared in some measure by the other tribesmen. Moreover, we know of numerous instances of group magic, such as the magical ceremonies of the Malay, or the Australian *intichiuma*, or the hunting magic of the northwest of America. Magic then, no less than religion, is social. Nor is the presence or absence of a belief in spirits a safe test of the magical or religious character of a proceeding: the Aranda magician achieves by pointing a bone what the Siberian shaman successfully accomplishes with the assistance of a spirit helper. The conception of magic as primitive science, finally, must be regarded as a most striking illustration of "the psychologist's fallacy." The savage believes in no uniformity, he posits no natural law in justification of his magical practise; the root of the magical situation is a belief in power, and what the power achieves on one occasion it will achieve on the next, a belief infinitely more basic and fundamental than the concept of natural law.

The only distinction that can justifiably be made between magic and religion, without imposition on the facts, is by the use of limiting concepts. Religion, as an individual phenomenon, tends to develop along the line of subjective elaboration which, in its high-

est stages, results in a psychic content the *raison d'être* of which rests in the very fact of its existence. Magic, on the other hand, develops into a pure esoteric technique, a way of achieving external results by means of certain definite devices. In primitive conditions magic and religion are inextricably intertwined, but any particular situation may be classed as religious or magical or as both according to its approximation to either of the two types mentioned above, or to both. To this it must be added that religion, in primitive conditions particularly, is also commonly accompanied by utilitarian rites, but such rites, unless indeed they are magical, do not comprise the element of constraint by means of a definite technique, but the element of supplication, of reliance on the will, favor, whim, of a higher power.

The fundamental concept of both magic and religion is that of power, *mana*, while the basic emotion of the religious as well as of the magical situation is the religious thrill. The spirit which, as shown above, is most intimately associated with religion, seeks the company of magic as well, but their intimacy is less pronounced.

IV

Now while it is true that the magic rite, as made familiar to us by the data of ethnography, seems also to be religious on its emotional side, it does not therefrom follow that magic, as a constraining technique, was born within the religious realm. From this point of view the relation of the magical act to the religious thrill is not unlike that of the spirit to the religious thrill. We have contended that the constant association of animism with religion, as given in ethnological experience, did not militate against an extra-religious derivation of the concept of spirit, *per se*. Similarly, an extra-religious derivation of the magical act is not contradicted by the constant association of the two in experience. The magical act, *per se*, does not seem to require a religious setting as an explanatory factor in its origin.

A magical act, as such, may be described psychologically as *an expression in behavior of a mental content the core of which is a desire*. There is nothing religious in such an act. Now, the data indicate that magical acts even in the most primitive communities are associated with the religious thrill. Hence, this association must be regarded as a very ancient cultural event. A general explanation of the association must thus be given. Desires, in order to lead to expression in behavior—representative or symbolic of the object desired—must reach a certain degree of intensity. Hence such magical behavior remains fixed in memory. But the objects of desire are things that are actually available, events that actually occur. When

subsequent to the magical act the things present themselves, the events occur, they are brought into causal connection with the magical act. At the same time there arises a half-realized intuitive comprehension that the objects of desire are in magical situations secured in ways different from those with which the primitive man is familiar in his matter-of-fact dealings with nature. The magical way is different in two respects. On the one hand, it is colored by strong emotion; in other words, the magical act occurs in an atmosphere of psychic tension which sets it off from the relatively indifferent emotional level of matter-of-fact achievement. On the other hand, the results of the magical act, while firmly believed in and in so far psychologically comparable to the results of technical and other matter-of-fact pursuits, also differ from the latter in two ways: the results of the magical act are not definitely foreseeable in their precise content nor as to the time of their occurrence. There is in the magical process in its entirety, that is, including the magical act as well as the final result, what Durkheim would call a breach of continuity, and there is something in the period which separates the effort from the achievement—a period to which there is no analogue in matter-of-fact activity—which fills the mind with suspense, anticipation and—sometimes perhaps—doubt. Thus the stage is set for the religious thrill, and for *mana*.

Thus magic and religion, having met in remotest antiquity, do not part company again until, at a much later period in culture, religion, while still in part teleological, begins to attain its ends by other means, then ceases to be teleological altogether; while magic, divesting itself completely of the religious thrill, becomes exclusively teleological.⁶

Thus the essential and ultimate factors in magic and religion are four in number: two factors are conceptual, spirit and *mana*; one emotional, the religious thrill; one activational, the magical act. Of these factors the emotional one, the religious thrill, is derived directly from man's contact with certain manifestations of nature. The inclination to experience, on certain occasions, such a thrill must

⁶ It may be worth noting that attitudes having a magical flavor reappear in intensely religious as well as modern situations. The Christian belief that a fervent prayer has a constraining effect on the Deity must be characterized as a recrudescence of the magical faith. Magical survivals, moreover, in the form of beliefs in influences exerted through channels other than those known to natural science, are common in our culture. Such are the beliefs in psychic action at a distance, in pre-natal influences on the child of the mother's sense impressions, in lucky and unlucky days and numbers, stones and accidents. Most of these beliefs, as held to-day, are thoroughly de-emotionalized or, at most, but thinly padded with emotion. In days gone by, such and similar situations were replete with *mana*, alive with the religious thrill. (Cf. article "Magic" in the *International Encyclopedia*, new edition in course of publication.)

be regarded as one of the most deeply rooted and ancient traits of the psychic organization of man. The conceptual factors, spirit and *mana*, go back to generalizations of certain types of behavior in things, but whereas *mana* represents a direct conceptualization of the religious thrill, spirit, as such, is not a carrier of religion, but becomes early associated with the religious thrill on account of certain peculiarities in the behavior of spirits, in part at least of the same peculiarities which lead to the conception of spirit. The activational factor, finally, the magical act, is an expression in behavior of certain desires. The magical act, as such, is not religious, but becomes early associated with the religious thrill on account of certain peculiarities in magical procedure when compared to matter-of-fact procedure.

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REVIEWS AND ABSTRACTS OF LITERATURE

The Beautiful. VERNON LEE. Cambridge, England: Cambridge University Press. 1913. Pp. viii + 155.

The problem of this little book, as defined by its author, is to ask, "what are the peculiarities of our thinking and feeling when in the presence of a thing to which we apply" the adjective beautiful (pp. 1-2)? and the general answer is that "The word beautiful implies the satisfaction derived from the contemplation not of things, but of aspects" (p. 19), where "an aspect consists of sensations grouped together into relations by our active, our remembering and foreseeing, perception" (p. 34).

In perceptive activity we have the first prerequisite of satisfaction, for out of it arises shape perception, and difficulty in shape perception makes contemplation disagreeable and impossible. Hence it earns for such aspects the adjective "ugly" (p. 54). But no answer is given to the reader's query, why then is the ugly often so fascinating? We are told, however, that there are other conditions necessary to beauty beside ease of perception. There must also be a suitable "empathy," to accept with our author Professor Titchener's translation of the German *Einfühlung* (p. 65). That is, the inner activities started by our perceptions must conform to certain conditions of intensity, purposefulness, and harmony, if they are to satisfy.

A curious limitation claimed for shapes as opposed to bodies is that the former are always two dimensional and become clothed with three dimensional attributes such as weight only through "empathy." The fundamental problem seems to be, "what does the presence of this shape lead us to think and do and feel" (p. 89)? In primitive art the shape element and the representative element are usually separate and the two get brought together as civilization advances.

Art has many aims: to make useful objects, to transmit and visualize

facts, and to awaken, intensify, and maintain definite emotional states. But the "esthetic imperative is merely the necessity of satisfying shape-contemplation, to which must be added the emphatic corroboration of our dynamic habits," and the function of art is to give a background for our ever-changing thoughts. Art is then "conditioned by the desire for beauty, while pursuing entirely different aims, and executing any one of a variety of wholly independent non-esthetic tasks" (p. 110). It adds a value for contemplation to the previously existing values as fact transmission, nerve and emotion excitant, and practical utility.

An important part of esthetic effect depends upon the observer himself. Each man develops a group of emphatic and perceptive habits that may afterwards be aroused by far other things than those originally giving them birth, perhaps by the mere name of "beauty," which operate not only to widen the scope of our esthetic appreciations, but also negatively to inhibit them when objects that have attracted us are set aside by some critic as old fashioned or second rate. Through such transfer, the contemplation of aspects is differentiated from thinking about things in such fashion that, to the genuinely esthetic man, the vicious character of subjects of art may be overlooked and he may not even understand moral criticism directed against these productions.

Two points suggest comment in this very readable sketch of esthetic problems. In the first place, the author writes always from the standpoint of traditional psychology; for example, that we project feelings of activity into things "precisely as we project our sensation of *red* from our own eye and mind into the object which has deflected the rays of light in such a way as to give us that *red* sensation" (p. 114), and to one who is outside of that point of view many conclusions must be consequently restated and some of the problems disappear. And secondly, that the social function of art is wholly neglected. Among the many other facts examined it is surely not insignificant that the artist wants an audience and that the discoverer of something beautiful, whether in art or nature, normally seeks to share his discovery with others. It would be ungracious, however, to point out such incompleteness in a brief work of this sort were it not for the fact that the consideration of social factors might do more than a little to help out the very lame final chapter on the usefulness of the demand for beauty which is here dismissed as a mystery along with such mysteries as why our sense organs are what they are and the like, and even illumine some of the earlier problems for which individualistic psychology is severely strained.

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Lecciones de Metafísica y Ética. RAFAEL MARÍA CARRASQUILLA. Bogotá: Librería Americana, 1914. Pp. 324.

So numerous are the text-books on scholastic philosophy that the appearance of a new one is not likely to attract attention. We ought not, however, to overlook Dr. Carrasquilla's "*Lecciones de Metafísica y Ética*," recently published.

The author has been known for many years as a writer on literary and philosophical subjects. He is the president of the Colombian Academy and one of the ablest South American writers.

His "Metafísica" is a clear, attractive, and methodical exposition of the principles of scholasticism. It is, however, to another factor that its significance is chiefly due. More, perhaps, than any other similar work, Dr. Carrasquilla's "Metafísica" illustrates the tendency of the most recent neo-scholastic school to examine all modern scientific and philosophical theories in the light of the scholastic principles. This tendency, as is well known, originated with the "Institut Supérieur de Philosophie" of Louvain. Whereas the first promoters of the neo-scholastic revival had limited themselves to a cold exposition of the philosophy of St. Thomas Aquinas, neglecting modern theories to such an extent that Cornoldi had not feared to call modern philosophy "the pathology of human reason," Cardinal Mercier and all the Louvain professors insisted more and more upon the necessity of a radical change of attitude. It is this change of attitude that Dr. Carrasquilla's work most perfectly illustrates. All modern philosophical systems are familiar to the author. The theories of James and Dewey are exposed and criticized. The "*philosophie nouvelle*" of Bergson and Le Roy is the occasion of interesting discussions (pp. 208, 269).

No less familiar is the author with science. In a chapter dealing with the scholastic theory of matter and form, he takes up the subject of radio-activity and discusses in the most able manner the nature and properties of the electrons, and the various theories to which their existence has given rise (pp. 170-171). Further on, in a chapter dealing with life and living organisms (pp. 179 ff.), we find an exposition of the nature and properties of the cell, which could easily find a place in a text-book of embryology. No doubt the author is right when he asserts that "if a young man who has learned the philosophy of St. Thomas becomes a materialist when he later studies medicine, he can not adduce ignorance as an excuse, nor blame his teachers of philosophy" (p. 7).

Dr. Carrasquilla's work ought to be read by all those who are interested in the neo-scholastic revival. With regard to the value of the work as a text-book, I will limit myself to quoting the following lines from the eminent South American educator, Martin Restrepo Mejía: "Better text-books on the subject could perhaps be written; but, at present, there does not exist in Spanish any text-book which surpasses it in exactness, precision, and clearness, which are the supreme qualities in a didactic work."

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BROOKLYN.

JOURNALS AND NEW BOOKS

REVUE PHILOSOPHIQUE. February, 1915. *Les sciences morales et sociales et la biologie humaine* (pp. 97-136): DR. GRASSET.—"Human Biology—which ought to be as essentially distinguished from animal biology as the latter is from plant biology—affords to the moral and

social sciences a base and a point of departure, which general biology . . . is incapable of giving them." *Le langage musical* (pp. 137-158): L. DAURIAC.—The content of musical language is the interior affective life. It interprets this life, but the interpretation may fit a plurality of texts. Music is thus "adjectival," and the "substantive" (images) called up by music varies with circumstances and with persons. The sensory quality of a given piece of music defines a "zone of correspondence," from which arise associations, varying in denotation, but similar in emotional connotation. *Sur le formation du complexe érotique dans le sentiment amoureux* (pp. 159-179); KOSTYLEFF.—The erotic complex is not fixated about an "ideal image of man or woman," nor does it necessarily comprise an individual image or a collection of individual traits. *Revue critique*. A. Lynch, *Psychology, a New System*: DUGAS. *Analyses et comptes rendus*. Zino Zini, *La doppia maschera dell' universo*. *Filosofia del tempo e dello spazio*: P. Giuseppe Rensi, *Le antinomie dello spirito*: J. SEGOND. Noel Vesper, *Anticipations d'une morale du risque*: L. DUGAS. Ludovico Limentani, *La morale della simpatia*: A. JOUSSAIN. E. Juvalta, *Il vecchio e il nuovo problema della morale*: RAYMOND MEUNIER. *Notices bibliographiques*. *Revue des périodiques étrangers*.

REVUE PHILOSOPHIQUE. March, 1915. *La dialectique du coeur* (pp. 209-230): J. SEGOND.—"Intelligence is not the paradoxical creation of a power divested of needs and unacquainted with conscience and desire. Intelligence should grow from intuition that is confused and is desirous of clarity, in order to permit the soul to discern the forms of its movement, and to realize, by this awareness of that which it outlines, the superior modes of its evolution." *L'originalité et l'universalité dans l'art* (pp. 231-260): A. JOUSSAIN.—Every esthetic emotion presupposes a subjacent desire. "The esthetic sentiment grows . . . from the sympathy that we experience for things, a sympathy in virtue of which we identify ourselves in some manner with the contemplated object." "The esthetic sentiment is not a form of desire, but one may define it . . . as love aroused in us by the objectivation of the desirable, although it may be rather the joy which results from this love." Experience (knowledge) is necessary for the comprehension of a work of art. The extension of knowledge presupposes the extension of sympathy. The originality of the artist is the stronger the stronger is his power of sympathy. The relation of genius to its milieu involves the operation of the racial genius (instinct and aptitudes) through the individual, and the spiritual assimilation by genius of the physical and social milieu. The action of the milieu is a function of the individuality of the artist. Genius is the affirmation of the will when individualized to the highest point, and it is this powerful individuality that the work of art materializes. Genius does not presuppose the negation of the will to live, but implies, on the contrary, its enlargement. *La manie de la lecture* (pp. 260-280): OSSIP-LOURIÉ.—A study of the morbid effects of the mania for reading. *Revue critique*. Frazer, *Les Bien faits de la Superstition*: F. PAULHAN. *Analyses et comptes rendus*. Rudolph Eucken. *Zur Sammlung der Geister*: I. BENRUBI. Eugène Osty, *Lucidité et intuition*: RAYMOND MEUNIER.

Proceedings of the American Society for Psychical Research. Vol. VIII., No. 4. New York: American Society for Psychical Research. 1914. \$4.00.

Woods, James Haughton. The Yoga-System of Patañjali: Or the Ancient Hindu Doctrine of Concentration of Mind. Tr. from the original Sanskrit. Harvard Oriental Series, edited with the cooperation of various scholars, by Charles Rockwell Lyman, Volume XVII. Cambridge: University Press. 1914. Pp. xli + 381.

NOTES AND NEWS

IN printing Professor Ralph S. Lillie's article, "What is Purposive and Intelligent Behavior from the Physiological Point of View?", which appeared in the last issue of this JOURNAL, a line was omitted. On page 606, lines 11 to 13 should read as follows: "a certain metabolic or formative routine in the organism, involving the construction of specially resistant germs in some cases, of appropriately reacting nervous and muscular mechanisms in others." On page 610, the third line from the top, the word "world" should be substituted for "word."

THE Aristotelian Society began its session on November 1. The subject of the inaugural address by the president, Dr. H. Wildon Carr, was "The Moment of Experience." On December 6 Lord Haldane will read a paper on "Progress in Philosophical Research." The session will include two symposia, one on "Recognition and Memory" and one on "The Theory of the State." To the latter Mr. Bertrand Russell, Mr. DeLisle Burns, Mr. Sidney Ball, and Mr. G. D. H. Cole will contribute.

THE Section of Anthropology and Psychology of the New York Academy of Sciences met in conjunction with the American Ethnological Society at the American Museum of Natural History on October 25. Professor M. H. Saville gave an illustrated lecture on "Field Activities of the Museum of the American Indians, 1915."

AT the Carnegie Institute of Technology the following appointments have recently been made: J. B. Miner, of the University of Minnesota, assistant professor of psychology; L. L. Thurston, of the University of Chicago, and Margaret L. Free, of Bryn Mawr College, assistants in psychology.

PROFESSOR M. E. HAGGERTY, of the University of Indiana, has been granted a year's leave of absence and is filling the post of professor of educational psychology at the University of Minnesota.

PROFESSOR MADISON BENTLEY, of the University of Illinois, has been elected to the Editorial Board of the *Psychological Review* Publications. Professor Bentley will be responsible for the *Psychological Index*.

DR. HENRY J. WATT, lecturer in psychology at the University of Glasgow, who has been interned in Germany since the beginning of the war, has been allowed to return home.

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THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

GERMAN PHILOSOPHY AND POLITICS.¹

THE spirit in which these three lectures are written is well indicated in what, at the end, Professor Dewey tells us is the instinctive ideal of American policy: "Promoting the efficacy of human intercourse irrespective of class, racial, geographical and national limits." It is a fair, candid, and generous presentation of the political philosophy of Kant, Fichte, and Hegel, yet independent in its attitude and not, on the whole, favorable in its judgment. We are shown that Kant, in divorcing Duty from the natural motives and consequences of action, and leaving particular duties indeterminate, virtually lent absolute authority to whatever commandments tradition or public law might impose; his morality, for all its theoretical autonomy, was servile in practise. "History proves what a dangerous thing it has been for men, when they try to impose their will upon other men, to think of themselves as special instruments and organs of Deity. The danger is equally great when an *a priori* Reason is substituted for a Divine Providence" (p. 43). "A justice which, irrespective of the determination of social well-being, proclaims itself an irresistible spiritual impulsion possessed of the force of a primitive passion, is nothing but a primitive passion clothed with a spiritual title so that it is protected from having to render an account of itself" (p. 56).

We are shown also how incredibly Fichte exalted the mission of the German people, leaving nothing to be added by the most vehement Pan-Germanism of to-day. The German nation was the only heir to the whole past, and the only seed of a healthy humanity in the future, so that if this special nationality was submerged, all history would perish with it, nay, God himself, who existed only when incarnate in mankind, would disappear. "As the Germans are the only truly religious people, they alone are truly capable of patriotism. Other peoples are products of external causes; they have no self-formed self. . . . The Germans alone of all existing

¹ "German Philosophy and Politics." John Dewey. New York: Henry Holt and Company. 1915. Pp. 132.

European nations are a pure race. They alone have preserved unalloyed the original divine deposit. Language is the expression of the national soul. And only the Germans have kept their native speech in its purity" (p. 100). "Since the State is an organ of divinity, patriotism is religion" (p. 99). "The premisses of the historic syllogism are plain. First, the German Luther who saved for mankind the principle of spiritual freedom against Latin externalism; then Kant and Fichte, who wrought out the principle into a final philosophy of science, morals, and the State; as a conclusion, the German nation organized in order to win the world to recognition of the principle, and thereby to establish the rule of freedom and science in humanity as a whole. . . . In the grosser sense of the words, Germany has not held that might makes right. But it has been instructed by a long line of philosophers that it is the business of ideal right to gather might to itself in order that it may cease to be merely ideal. The State represents exactly this incarnation of ideal law and right in effective might. . . . As past history is the record of the gradual realization in the Germanic State of the divine idea, future history must uphold and expand what has been accomplished. Diplomacy is the veiled display of law clothed with force in behalf of this realization, and war is its overt manifestation. That war demands self-sacrifice is but the more convincing proof of its profound morality. It is the final seal of devotion to the extension of the kingdom of the Absolute on earth" (pp. 87-89).

It was Hegel who formally transferred these divine attributes to the established State, Fichte having looked for them rather in the inner inspiration of the nation and its "true priest," the scholar. Hegel's scorn was infinite for any ideal not destined to be actualized and dominant. In his own words, quoted by Professor Dewey, "the State is the rational in itself and for itself. Its substantial unity is an absolute end in itself. To it belongs supreme right in respect to individuals whose first duty is—just to be members of the State.' The State 'is the absolute reality, and the individual himself has objective existence, truth, and morality only in his capacity as a member of the State.' . . . The State is God on earth" (pp. 110-111). If great "world-heroes" venture to throw off established ideas or institutions, it is not on their own authority, but only because they draw, in Hegel's words, "their purposes and calling . . . from a concealed fount, from that inner spirit hidden beneath the surface which, striking the outer world as a shell, bursts it to pieces. . . . Such men may even treat other great and sacred interests inconsiderately. . . . So mighty a force must trample down many an innocent flower—crush to pieces many an object in its path" (pp. 111-112). Or, as Professor Dewey himself puts it, "history is the

movement, the march of God on earth through time. Only one nation at a time can be the latest and hence the fullest realization of God. . . . War is the signally visible occurrence of such a flight of the divine spirit in its onward movement. The idea that friendly intercourse among all the peoples of the earth is a legitimate aim of human effort is a basic contradiction to such a philosophy. War is explicit realization of 'dialectic,' of the negation by which the higher synthesis of reason is assured. It effectively displays the 'irony of the divine Idea.' . . . Particularly against the right of the 'present bearer of the world-spirit, the spirits of other nations are absolutely without right. The latter, just like the nations whose epochs have passed, count no longer in universal history.' "

This should prove a calming thought at the present time; for if Germany, as can hardly be doubted, is the "present bearer of the world-spirit," Belgium, Poland, and the United States are as safe from suffering the least wrong at German hands as is ancient Ninevah or Carthage. And as the author observes, "when a recent German writer argues that for Germany to surrender any territory which it has conquered during the present war would be sacrilegious, since it would be to refuse to acknowledge the workings of God in human history, he speaks quite in the Hegelian vein" (pp. 112-113).

How much more solid and reassuring is this healthy optimism than the old fanciful hope of the martyrs that they should be vindicated at the last day! The veritable last judgment, Hegel teaches us, is the course of history. To apportion justice the God of Hegel does not need to trouble his pure German conscience with Jesuitical casuistry or an impossible hedonistic calculus. His principle is as simple as it is rational: Never to vindicate the victim, always to vindicate the executioner. These genuine maxims of idealism, presented by Professor Dewey, as I have not here the space to do, in their original atmosphere and perspective, ought to dispose once for all of the stammerings of those English Hegelians who would persuade us that Germany has now proved false to the spirit of her great philosophers.

It was from Spinoza, I imagine, that Hegel caught this scorn of the finite, of the vainly desired, of the under dog. But in Spinoza this scorn had been purely naturalistic and contemplative: he saw the laws of nature, like a tempest, continually sweeping the old world clean and continually renewing it. This precarious and incidental hold on existence Spinoza attributed also to himself and to all mankind, even if the spectacle of that cruel and fertile necessity could at times fascinate the mind and lift its rapt sympathies above its own destiny. The sublimity and the irony of this pantheistic

sentiment are fully preserved in Hegel. Yet in him the transcendental theory of knowledge had intervened. Scorn of the finite could no longer be, as in Spinoza, impartial, courteous, and Oriental: sympathy with the infinite could no longer be liberating and humble. The self that was finite, and that perished, now passed for a mere figment of thought: the true and living self had killed it by thinking, being itself at once agitated and immortal. Humility was thus impossible; so was peace, so was the understanding that judges not. Hegel's scorn of the finite involved recasting it and explaining to it what it really was; this scorn was acrid, arrogant, eager, hounded by the lust of life, and swollen with the claim to victory. It was comparative, it lived by transition, and it was not pure scorn, but was mixed with annoyance. The thought that all that was real was rational did not reconcile Hegel to the world and separate him from it in the same even and thorough way in which Spinoza was reconciled and separated by the thought that all that was real was necessary. "Real" for Hegel, as for Plato, was a eulogistic term. The unreal existed also. The real had to swallow the unreal and digest it, so that this reality, this reason, was always hungry and sometimes dyspeptic. The rational idea was an outline, and the filling might be deficient or might be unsuitable. The concrete universal was the system or organic scheme of some whole, lending the parts their significance and "reality," but it was not identical with their total material being, with all their accidents. The rational was not coextensive with the real, in the ordinary sense of this word: it was identical only with the "truly" real, with that which is conceptual, deducible, and dialectical in what exists or is found. This real was therefore not improperly called ideal as well.

When Hegel sanctifies whatever is real and dominant, scorning all defeated demands, he therefore still preserves a distinction between the ideal and the fact. The State is divine, but any State on occasion may be false to itself and not properly the State. The individual and the foreigner have no rights of their own, but the State, to express its nature fully, must grant them some privileges. Hegel is a realist in ethics, a sort of speculative Bismarck; but he is idealistic enough to remain a moralist, since his reading of facts and forces distinguishes what is "real" and dynamic in them, which is good, from what is merely phenomenal, which is worthless. The tone of eulogy or disparagement which permeates his writing, though often willful and out of place, is thus not an absolute betrayal of his pantheism, as it would have been of Spinoza's. Hegel's world, while as a whole it perfectly fulfils its mission, in every part only strives to fulfil it, and even the total fulfilment exists only in the act of achieving it, in which aim and fact are still distinguishable. The

best of possible processes, he thinks, should be better at one end than at the other, though not, like most books, music, and systems of philosophy, better at the beginning than at the end. His romantic theology oscillates between two moral standards, neither of which it can abandon without giving up the ghost: the standard of the struggling will, which aches to emerge from one intolerable situation after another and therefore always conceives the future as better than the present, and the standard of the supposed divine judgment, which regards that endless agony as equally good and necessary throughout. The romantic principle, frankly expressed, would justify Schopenhauer and Nietzsche; the theological principle, if held with conviction, would lead back to the genuine pantheism of Spinoza and the Stoics.

Professor Dewey skillfully avoids complicating his survey with any account of the transcendental theory of knowledge; yet that after all is the foundation of everything in this philosophy, and until it is radically abandoned we shall hardly emerge from the moral quicksands to which it leads. Why is there in fact a clear difference between what is and what ought to be? Why is true freedom so very unlike the blessed consciousness of being willingly a slave? Why is the autonomy of conscience actually not romantic and anarchical? Why is there a limited authority in institutions? Why are compromise and partial cooperation practicable in society? Why is there sometimes a right to revolution? Why is there sometimes a duty of loyalty? Because the whole transcendental philosophy, if made ultimate, is false, and nothing but a selfish perspective hypostasized; because the will is absolute neither in the individual nor in humanity; because nature is not a product of the mind, but on the contrary there is an external world, ages prior to any *a priori* idea of it, which the mind recognizes and feeds upon: because there is a steady human nature within us, which our moods and passions may wrong, but can not annul; because there is no absolute imperative, but only the operation of instincts and interests more or less subject to discipline and mutual adjustment; and finally because life is a compromise, an incipient loose harmony between the passions of the soul and the forces of nature, forces which likewise generate and protect the souls of other creatures, endowing them with powers of expression and self-assertion comparable to our own and with aims not less sweet and worthy in their own eyes; so that the quick and honest mind can not but practise courtesy in the universe, exercising its will without vehemence or forced assurance, judging with serenity, and in everything discarding the word absolute as the most false and the most odious of words.

GEORGE SANTAYANA.

A NEW MONADOLGY¹

PROFESSOR VARISCO'S philosophy has been received with considerable interest by English idealists,² not unnaturally, since it is admittedly a development of English Neo-Hegelianism (p. 235)³ and probably the most notable case in which that philosophy has been made a point of departure by a non-English speaking philosopher. Professor Varisco's philosophy has to be considered mainly with respect to the modifications which it introduces into the classic form of English idealism. His system is idealistic, one might almost say, by assumption; at any rate, he regards the idealist principle "no object without a subject" as sufficiently established by the reasons commonly urged in favor of it and he has nothing new to offer in that respect, nor does he devote any space in this volume to considering the objections which of late the realists have brought against it. To those familiar with English philosophy, therefore, it will be most natural to consider Professor Varisco's work in comparison with the type of idealism from which he sets out, though it ought not to be suggested that he has merely restated a familiar position. The variation is in fact considerable, as a summary of Professor Varisco's system will show, and the direction of his changes parallels in part at least that taken by some of the English critics of absolute idealism.

The element of English idealism to which Professor Varisco chiefly objects is the absolute, the inclusion of finite selves as moments in a single absolute experience and the reduction of phenomena to appearances. By making the phenomenal world a necessary manifestation of an experience already complete and perfect, the English absolute idealist has been led to deny reality to time, change, and spontaneity; Professor Varisco, on the other hand, regards these as irreducible phases of reality. He thus rejects idealistic monism and adopts in its place what he himself refers to correctly as a monadology, which no doubt owes much to Leibniz, though there are very important differences, and also suggests in

¹ "Know Thyself." Bernardino Varisco. Translated by Guglielmo Salvadori. London: George Allen and Unwin. 1915. Pp. xxix + 327.

² Cf. Professor A. E. Taylor's notice of Professor Varisco's earlier works "I problemi massimi," *Mind*, No. 77, Vol. XX, pages 135 ff., also "Idealism and Religion in Contemporary Italian Philosophy," by Angelo Crespi, *Mind*, No. 94, Vol. XXIV, pages 222 ff., and many references in Professor Bosanquet's "Principle of Individuality and Value."

³ All references are to the English translation of "Know Thyself." Professor Varisco refers especially in this passage to Caird's "Hegel," but he has also a number of references to Mr. Bradley's "Appearance and Reality" and to Professor Royce's "The World and the Individual."

some respects the pluralism of Professor James Ward. "Nothing exists, which is not in relation with intelligence; or rather, to exist is simply to be in relation with intelligence. But the existence of intelligence consists in the existence of a multitude of consciousnesses; which are distinct as consciousnesses, but have all, in the end, one and the same content" (p. 234). "The unity of Being can be resolved into the mutual implication of subjects, into the fact that each is the unity of all" (p. 235). Professor Varisco therefore departs radically from the Bradleian theory that the finite is transformed and transmuted in the absolute. "To suppose that to be conscious consists in combining or amalgamating phenomena, so as to make them other than they would be outside their unity, is nonsense, both with regard to the particular subject, and, *a fortiori*, with regard to the universal Subject" (p. 232). "The reality consists of the phenomena, though none of these is possible outside their unity. . . . Consequently we deny that time is unreal, or illusory, though time, being a form of variation, has like every single phenomena [*sic*], no existence in itself" (p. 229, n.). Professor Varisco, it may be added, does not present his system as a completed philosophy. The most ultimate problem of all is left open; his system, so far as he has developed it, is regarded as consistent with an ultimate interpretation either pantheistic or theistic. The author makes no secret of his preference for the latter, but he is not yet prepared to offer proof for his preference.

It will be well now to give a brief summary of the system, following in general the order of the author's Introduction. A phenomenon is defined as "something, the existence of which is a being distinguished in the continuity of an experience or conscious life." Experience is at the same time reality and cognition, or, to be exact, this is true of the subconscious from which both consciousness (in the strict sense) and objects emerge. Within its experience the subject organizes itself by making distinctions, such as that between extended and unextended phenomena. Thus arises the subject (strictly so called) and by abstraction from this we conceive the object of physical science and common life. But all the objects which I can ever know are objects of my experience and therefore a part of myself in the broader sense; the mere fact that some objects are collocated in space outside my body does not make them less a part of me. This does not imply a limitation of my knowledge; on the contrary, it means that everything that exists is implicit in me. There is no essentially unknowable reality. The self, then, has for its content the content of the whole phenomenal world. Mostly, it is true, this content is subconscious, but consciousness

and self-consciousness develop from the primitive unity of the subconscious by making explicit that which before was only implicit. Hence the principle from which this volume takes its name, "Know Thyself."

The analysis of experience which ends in the distinction of subject and object is paralleled by a process which gives rise to the conviction that there are other subjects. As thinking develops the bi-polar distinction between the extended and the unextended, so acting develops that between activity and resistance; the consciousness of activity becomes clarified only as activity and resistance are distinguished. Now "resistance is necessarily apprehended as resembling activity: it is apprehended together with activity; it can be conscious at first only as a duplicate of activity." Thus the resistances become organized to form another subject.⁴ Subjects are irreducibly distinct from one another, for no unextended phenomenon is ever common to two of them, but the action of one subject and that of another mutually condition and modify each other. They interfere, and this can be conceived only on the supposition that they belong to a single unity without, however, ceasing to be two. "The world is resolvable into a multitude of subjects, more or less developed, perhaps more or less capable of development, but none of which falls short of that character which constitutes a subject as such, *i. e.*, the character of being essentially related to all others." "As every subject is essentially implied by every other,

⁴ Is there not a singular difference here between the deductions drawn regarding the object and other subjects? Both the object and the other subject appear in the arrangement of experience by successive distinctions. The subject, in the broad sense, is original and underivable, though the subject in the narrower sense originates by emerging from the subconscious as the correlate of the object. In the one case, however, it is an "arbitrary and meaningless hypothesis" to suppose the existence of bodies independent of any subject. Why, then, is it not equally arbitrary and meaningless to suppose that another subject is anything more than an arrangement of my experience set aside and distinguished just as the object is? The actual conclusion is significantly different: the subject comes to the conviction that there are other subjects. It is true that he comes to the conviction that there are objects also, but this is said to require interpretation as an organization of experience, whereas the belief in independent subjects requires no interpretation (p. xi). But why does it not? The truth appears to be that Professor Varisco's idealism is substantially Cartesian; it depends upon the alleged intuitive priority of the subjective. His philosophy is therefore more decidedly Berkeleyian than English idealism has ever been and he no more proves the existence of other selves than Berkeley did. In general, is it not clear that these attempts to derive subject and object by an organization of experience, while they have a certain plausibility, do, in fact, beg the question? Professor Varisco agrees that the subconscious unity of the subject is presupposed. But are not the object and other subjects also taken for granted? At all events no one has ever succeeded in describing such a development without assuming both a subject and an environment.

the totality of the subjects constitutes a system of which each subject is the unity" (p. 31). "The phenomenal universe is unified or has its centre in each of the subjects of which it is the result. It has a polycentric structure; and such a structure is essential to it; its existence consists in having it" (p. xiii).

Professor Varisco's philosophy, then, involves the following fundamental propositions:⁵ (1) There are certain original unities or experiences which as subconscious identify subject and object, reality and cognition, and which by organization distinguish them. (2) Everything real belongs to some or all of these unities. (3) Each unity is a principle of spontaneity; *i. e.*, it gives rise to undetermined variations, and since variation can never arise from purely logical (timeless) relations, change requires such spontaneity. (4) The primitive unities, though irreducible to each other and as separate experiences distinct from each other, are nevertheless members of a single "solidary" system. Each such experience implies every other. Because of this solidarity, or inclusion in a single system, a spontaneous variation in any unity gives rise to a corresponding determined variation in every other. The systematic relation is the ground of the causal relation, while the spontaneity of the original variation explains the temporal, extra-logical character of causality. Thus three types of relation are distinguished: the purely logical relations which are extra-temporal; causal relations which are necessary but temporal, and accidental relations (relations referred to the spontaneity of the unities) which are temporal and wholly undetermined.⁶

The mere recognition of these three types of relation is not all that Professor Varisco seeks; his philosophy aims to show that the various types "imply" each other and that all, therefore, are inevitable elements of his universe.⁷ Since this is really a critical point in the book, a somewhat extended quotation is in order: "Every primitive unity is a unity; and therefore all the elements constituting it . . . will be solidary. That is to say, rationally necessary relations will arise between the variations, and in general between the elements of every primitive unity,—relations which, in so far as the elements are variations, acquire . . . the character of causal relations. Hence, not only do the spontaneities of different unities interfere with each other; but also the variations, spontaneous as well as determinate, of each unity interfere with each of the others. Whence it follows, that no fact occurs in which there is not at once,

⁵ Cf. pages 162 *ff.*

⁶ Cf. Chap. VI., sections 8 and 9.

⁷ There is nothing else in Professor Varisco's book so puzzling as the meaning which he intends to attach to the word "imply."

as reciprocally co-essential, an indeterminate and a determinate factor. Spontaneity is intrinsically indeterminate. But the primitive unities are many; the variations of each primitive unity are also many. Whence a determinism which results from the connected multiplicity of the indeterminate factors.

"We seem to have before us a double dualism: the dualism causality-rationality, and the dualism indeterminism-determinism. From the considerations just mentioned it appears that those dualisms . . ., without vanishing, are reconciled, and indeed mutually imply each other (pp. 163 ff.).

But will any meaning of implication bear such a strain? To put the question bluntly, How can a spontaneous and intrinsically indeterminate event be *implied*? Professor Varisco's argument at this point is strangely hasty and inconclusive. He lays down the thesis that causality and accidentality imply each other necessarily (p. 155). As proof he then points out that a book, since it can be moved from place to place while remaining the same book, is not essentially in any particular place, and he adds, what is doubtless true enough as a matter of fact, that no one fails to distinguish between the accidental and the necessary. But wherein does the necessity imply the accident? In so far as the presence of the book in a given place is an accident, it is not implied by anything, at least not by anything within the system of concepts with reference to which its location is an accident; this is all that is meant by calling it an accident. On the other hand, if the location of the book is implied in another system of concepts, then from this point of view its location is not an accident. A copy of Hegel's "Logic" does not cease to be Hegel's "Logic" if I take it out of a bookcase and put it on a table; its subject-matter does not imply either location. But if I put it on the table in order that I may remember to take it with me, its location is as essential to it, from the point of view of my purpose to take it, as its subject-matter. Its location is implied by my probable forgetfulness, and is not accidental. One and the same fact may be either accidental or necessary according to the context of other facts in reference to which I conceive it, but this surely does not show that causality implies accidentality. Accidentality means merely the absence of implication for present purposes.

Professor Varisco seems to try to meet this difficulty by holding that the accidental is not implied so far as its individual nature is concerned; it is implied only that there are accidental events. "If the universe is in its essence the higher unity (the system) of spontaneous unities, it will consequently be essential to it to include accidental elements; none of the single accidental elements is essential, but nevertheless it is essential that there should be accidental ele-

ments" (p. 175). It is clear, however, that this does not really meet the difficulty. Let it be admitted that the universe may be so conceived that spontaneous events are possible, just as it might conceivably be implied that after ten minutes no known law of nature would remain valid; the machine might conceivably be timed to run down and stop at a given moment. But in that case beyond the limits of ten minutes implication simply would not run; there would be no implication except for events within that time and it would be meaningless to say that the occurrence of spontaneous events was implied thereafter. Similarly it may be said that, if certain metaphysical hypotheses are made, the possibility of spontaneous events is implied, but this amounts to saying that events may occur which are not implied by any other events, and to try to say more reduces the hypothesis to the truism that if spontaneities occur, then they do occur. If, then, a philosopher tries to make room in his system for spontaneities, he must adopt a theory of knowledge by which unimplied facts may be taken as literally given; after they occurred they might have implications, but they would have wholly to lack logical derivation.

With this statement we arrive at the fundamental criticism of Professor Varisco's system. Between his metaphysical and his logical theories there is an obstinate discrepancy which he seeks in vain to eliminate. In his effort to revise English idealism he has rejected the absolute and has therefore substantially made over his metaphysics. On the other hand, the modifications which he has made in the logic of idealism are by no means adequate to such a reconstruction of its metaphysics. With all its faults, English idealism has been in the main consistent; it has been the systematic statement of a certain point of view both in logic and in metaphysics, and in consequence it is not open to the critic to rebuild it at one point and leave it standing at another. Whatever revisions are necessary must go straight through the structure from top to bottom.

It must indeed be agreed that Professor Varisco does not adopt the logic of absolute idealism in its entirety, but it is nevertheless true that by implication at least he leaves the main principles of that logic without substantial modification. His adherence to these principles is shown by the title of his book, "Know Thyself," and he begins with this sentence: "*Intelligendo se, intelligit omnia alia.*" These words, applied to the individual subject, sum up the doctrine which I propose to set forth" (p. v.). "In substance, metaphysics is constructed by penetrating into the cognition which we have of ourselves; it has self-consciousness as its presupposition, though not a self-consciousness incapable of development, which indeed would not be self-consciousness at all. Know Thyself: this is the starting-

point, and must be the goal" (p. 35). Hence the argument that the self includes all phenomena and is, subconsciously, the union of knowledge and reality. Whatever emerges into consciousness has been implicit in the subconscious. "Anything new which we may know is new only in relation to explicit consciousness: implicitly we already knew it. The whole universe is implied by us: observation, reasoning, are simply means, by which some part of what is implicit becomes explicit" (p. 97).⁸ This becoming explicit takes place by means of judgments, and truth is the consistency of judgments. "The ultimate test [of truth and falsity] is the possibility or impossibility of placing a judgment, a particular system of judgments, in the frame of the universal system" (p. 90). Similarly error is said to be spontaneous non-conformity to the whole (p. xix). Now this is substantially a restatement of the consistency logic of absolute idealism. Aside from the reference to spontaneity and the use of the term subconscious it might have been written by Mr. Bradley or Professor Bosanquet.

From the point of view of the consistency logic the injunction Know Thyself means something. If experience is implicitly a whole and if this whole becomes explicit dialectically by the removal of contradictions, then it is reasonable to say that advancing knowledge is a progressive understanding of the self. For the self is precisely the form of that complete logical relatedness which realizes itself more and more in the dialectical process by which knowledge becomes more complete and systematic. This conception of implicit logical relatedness is precisely what leads the absolute idealist to make self-consciousness the central fact of his theory both of knowledge and reality. These inherent logical relationships are all that the idealist means when he speaks of the unity of the self. Professor Varisco, therefore, completely disrupts the theory when he introduces a-logical spontaneities into the self. He destroys the whole ground upon which idealism has argued that knowledge is a development from the implicit to the explicit. For, on the one hand, if elements of experience are created spontaneously by the self, how can they be said to be implicit? And, on the other hand, if they are already there, not new, but conditioned by the previous nature of the self, how can they be said to be spontaneous? The thread of logical continuity being cut, there is nothing left beyond the psychological truism that, whatever I may come to know, I shall know. Professor Varisco's idealism not only embodies the ego-centric predicament; it glories in it. It may be fairly questioned whether the ego-centric predicament is an adequate criticism of English idealism,

⁸ Cf. also page xviii, 18.

but surely the ego-centric predicament, when it occurs, does not prove that one knows only oneself.

In this partial, but incomplete, revision of absolute idealism lies the key to Professor Varisco's puzzle about the implication of the accidental. His theory of knowledge, resting at bottom upon the consistency theory, requires him to show the various elements of his philosophy as logically involved in one another. From this point of view, all that co-exists, and is, therefore, not contradictory, must be mutually implied. Every judgment must rest in a complete system of judgments which, developed fully, will wholly determine it. But the spontaneous and a-logical is just the one thing that can never find a place in such a system. The problem set by Professor Varisco's monadology is one for which there is no solution in the theory of knowledge which he retains. The spontaneities require that knowledge shall not develop from within merely, shall not be the becoming explicit of what is already implicit, but shall be genuinely additive. If the theory of knowledge stands, Professor Varisco's subconscious must take on all the essential qualities of the absolute. If the spontaneous and a-logical stand, he will have to look with more sympathy upon that "false and absurd metaphysics," pluralism.

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A RÉSUMÉ OF EXPERIMENTS ON THE PROBLEM OF LIGHTING IN ITS RELATION TO THE EYE

THE work of which this paper is a brief outline was done under the auspices of the American Medical Association. The object of the work has been to compare the effect of different lighting conditions on the eye and to find the factors in a lighting situation which cause the eye to lose in efficiency and to experience discomfort.

Confronting the problem of the effect of different lighting conditions on the eye, it is obvious that the first step towards systematic work is to obtain some means of estimating effect. The prominent effects of bad lighting systems are loss of efficiency, temporary and progressive, and eye discomfort. Three classes of effect, however, may be investigated: (1) the effect on the general level or scale of efficiency for the fresh eye; (2) loss of efficiency as the result of a period of work; and (3) the tendency to produce discomfort. A description of tests designed especially for the investigation of these

effects has already appeared in print.¹ The test for the second effect, it may be mentioned, is not analytical in nature. Its results express an aggregate loss of function. Supplementary tests have been devised, therefore, by means of which the factors contributive to a given result may be separated out. A description of these tests is also included in the papers referred to above.

The following aspects of lighting sustain an important relation to the eye: the evenness of illumination, the diffuseness of light, the angle at which the light falls on the object viewed, the evenness of surface brightness, intensity, and quality. The first four of these factors, which may be grouped together as distribution factors, will be discussed briefly with reference to types of lighting now in common use.

The ideal condition with regard to the distribution factor is to have the field of vision uniformly illuminated with light well diffused and no extremes of surface brightness. When this condition is attained the illumination of the retina will shade off more or less gradually from center to periphery, which gradation is necessary for accurate and comfortable fixation and accommodation. In the proper illumination of a room by daylight, we have been able thus far to get the best conditions of distribution. Before it reaches our windows or skylights, daylight has been rendered widely diffuse by innumerable reflections; and the windows and skylights themselves acting as sources have a broad area and low intrinsic brilliancy, all of which features contribute towards giving the ideal conditions of distribution stated above. Of the systems of artificial lighting the best distribution effects, speaking in general terms, are given by the indirect systems, and the semi-indirect systems with a small direct component of light. In the indirect systems the

¹ Ferree, C. E. "Tests for the Efficiency of the Eye under Different Systems of Illumination and a Preliminary Study of the Causes of Discomfort," *Trans. Ill. Eng. Soc.* 1913, 8, pp. 40-60; "Untersuchungsmethoden für die Leistungsfähigkeit des Auges bei verschiedenen Beleuchtungssystemen, und eine vorläufige Untersuchung über die Ursachen unangenehmer optischer Empfindungen," *Z. f. Sinnesphysiol.*, 1915, 49, pp. 59-78; "The Efficiency of the Eye under Different Systems of Lighting," *Fourth Intern. Congress on School Hygiene*, Buffalo, 1913, 5, pp. 351-364; "Ophthalmology," July, 1914, pp. 1-16; "Mind and Body," 1913, 20, pp. 280-286, 345-353; "The Problem of Lighting in Its Relation to the Efficiency of the Eye," *Science*, July 17, 1914, N. S., 15, pp. 84-91; Ferree, C. E. and Rand, G. "The Efficiency of the Eye under Different Conditions of Lighting: The Effect of Varying Distribution and Intensity," *Trans. Illum. Eng. Soc.*, August, 1915, 10, pp. 407-447; "Further Experiments on the Efficiency of the Eye under Conditions of Lighting," *Trans. Ill. Eng. Soc.*, August, 1915, 15, pp. 448-504. See also J. R. Cravath. "Some Experiments with the Ferree Test for Eye Fatigue," *Trans. Ill. Eng. Soc.*, 1914, 9, pp. 1033-1047; also C. E. Ferree, "Discussion of Mr. Cravath's Paper, Some Experiments," etc., *ibid.*, pp. 1050-1059.

source is concealed from the eye and the light is thrown against the ceiling or some other diffusely reflecting surface in such a way that it suffers one or more reflections before it reaches the eye. In some of the respects most important to the eye, this and the semi-indirect systems with a small direct component of light give the best approximation of the distribution effects characteristic of daylight of any that have yet been devised. The direct lighting systems are designed to send the light directly to the plane of work. There is in general in the use of these systems a tendency to concentrate the light on the working plane or object viewed rather than to diffuse it, and to emphasize brightness extremes rather than to level them down. Too often, too, the eye is not properly shielded from the light source and frequently no attempt at all is made to do this. The semi-indirect systems are intended to represent a compromise between the direct and indirect systems. A part of the light is transmitted directly to the plane of work through the translucent reflector placed beneath the source of light, and a part is reflected to the ceiling. Thus, depending upon the density of the reflector, this type of system may vary between the totally direct and the totally indirect as extremes and share in the relative merits and demerits of each in proportion to its place in the scale. By giving better distribution effects this type of system is supposed also to be a concession to the welfare of the eye, but our tests show that the concession, at least for the reflectors of low and medium densities, is not so great as it is supposed to be. In fact, installed at the intensity of illumination ordinarily used or at an intensity great enough for all kinds of work, little advantage seems to be gained for the eye in this type of lighting with reflectors of low or medium densities; for with these intensities of light and densities of reflector, the brightness of the source has not been sufficiently reduced to give much relief to the suffering eye. Until this is done in home, office, and public lighting, we can not hope to get rid of eye strain with its complex train of physical and mental disturbances.

In the experimental work the following points are covered: the effect of varying the distribution factors on the ability of the eye to maintain its maximal efficiency for a period of work; the effect of varying the intensity of light with various groupings of distribution factors; and certain miscellaneous experiments relating to the hygienic employment of the eye. These latter experiments include the effect of varying the area and conversely the intrinsic brightness of the ceiling spots above the reflectors in an indirect system of lighting; the effect of varying the angle at which the light falls on the work in a given lighting situation; the effect of

using an opaque eye-shade with light and dark linings with each of the lighting installations used in the distribution and intensity series; the effect on the efficiency of the fixation muscles of a period of work under each of these installations; the effect of motion pictures on the eye at different distances from the projection screen; and a determination of the tendency of all the conditions of lighting employed to produce discomfort and to cause loss of efficiency.

The investigations are not abstract in character. All the variations obtained were gotten in actual concrete lighting situations by employing lighting installations in common use. In order that a correlation might be made between lighting conditions and the effect on the eye, the following specification of illumination effects was made in each case. (1) A determination was made of the average illumination of the room under each of the installations of lighting used. The room was laid out in 3-ft. squares and illumination measurements were made at 66 of the intersections of these squares and at the point of work. Readings were taken in a plane 122 cm. above the floor with the receiving test-plate of the illuminometer in the horizontal, the 45 deg., and the 90 deg. positions, measuring respectively the vertical, the horizontal, and the 45 deg. components of illumination. The 122 cm. plane was chosen because that was the height of the test object. In the work on the distribution series the illumination was made as nearly as possible equal at the point of work. (2) A determination was made in candle-power per sq. in. of the brightness of prominent objects in the room, such as the test surface; the reflectors for the semi-indirect installation; the reflectors and filament for the direct installation, etc.; the reading-page; the specular reflection from surfaces; etc. The brightness measurements were made by means of a Sharp-Millar illuminometer with the test-plate removed. The instrument was calibrated against a magnesium oxide surface obtained by depositing the oxide from the burning metal. By this method the reflecting surfaces were used as detached test-plates. The readings were converted into candle-power per sq. in. by the following formula:

$$\text{Brightness} = \frac{\text{Foot-candles}}{\pi \times 144}$$

(3) Photographs were made of the room from three positions under each system of illumination.

The tests for the effect on the eye were made at four representative positions in the room. The observers used were all under 26 years of age. A clinic record was made of the eyes of each observer. The following results were obtained.

1. Of the lighting factors that influence the welfare of the eye,

those we have grouped under the heading of distribution are apparently fundamental. They seem to be the most important we have yet to deal with in our search for the conditions that give us the minimum loss of efficiency and the maximum comfort in seeing. If, for example, the light is well distributed in the field of vision, and diffuse, and there are no extremes of surface brightness, our tests indicate that the eye, so far as the problem of lighting is concerned, is practically independent of intensity. That is, when the proper distribution effects are obtained, intensities high enough to give the maximum discrimination of detail may be employed without causing appreciable damage or discomfort to the eye.

2. For the kind of distribution effects given by the direct and semi-indirect reflectors of low or medium densities, our results show that unquestionably too much light is being used in ordinary work for the comfort and welfare of the eye.

3. The angle at which the light falls on the object viewed is an important factor, but not nearly so important, for example, as evenness of surface brightness in the field of vision. Extremes of surface brightness in the field of vision seem to be the most important cause of the eye's discomfort and loss of efficiency in lighting systems as we have them at the present time. In lighting from exposed sources it is not infrequent to find the brightest surface from 1,000,000 to 2,500,000 times as brilliant as the darkest; and from 300,000 to 600,000 times as brilliant as the reading-page. These extremes of brightness in the field of vision are, our tests show, very damaging to the eye.

4. Of the systems of artificial lighting tested thus far, the best results have been obtained for the indirect system, and the semi-indirect systems with reflectors having a high density. By means of these reflectors the light is well distributed in the field of vision and extremes of surface brilliancy are kept within the limits which the eyes are prepared to stand. Considerable loss of efficiency has been found to result from the use of direct reflectors and semi-indirect reflectors of low or medium density.

5. The loss of efficiency sustained by the eye under an unfavorable lighting situation is found to be muscular, not retinal. The retina has been found to lose little if any more in efficiency under one than under another of the lighting systems employed.

6. Loss of efficiency of the fixation muscles is, according to our tests, a very small part of the eye's aggregate loss in muscular efficiency as the result of work under an unfavorable lighting system. The chief loss seems to be sustained by the accommodation muscles or the muscles which adjust the lens of the eye.

7. Eye-shades are apparently not an adequate substitute for

lamp-shades for the protection of the eye from the sources of light. The best results are obtained by means of an opaque eye-shade with a light lining. The usual opaque eye-shades with dark linings, while they shield the eye from the source of light, do not by any means eliminate harmful brightness differences in the field of vision. They in fact create for the eye a very unnatural brightness relation; *i. e.*, they make the whole upper half of the field of vision dark in sharp contrast with the brightly lighted lower half. The direct effect of this is a strong brightness contrast (physiological) over the lower half of the field of vision which causes glare in surfaces which have no glare and increases the glare in surfaces in which glare is already present. Moreover, the unusual and strongly irregular character of the image formed on the retina probably also sets up warfare in the incentives given to the muscles which adjust the eye. That is, the upper half of the field of vision is dark and presents no detail. The effect of this is probably to exert a tendency to cause the muscular relaxation characteristic of the darkened field of vision. The lower half of the field of vision is light and filled with detail. The incentive here is for the best possible adjustment of the eye for the discrimination of detail in the objects viewed, while the rim of the shade, the sharply marked boundary between the light and dark halves of the field of vision and much nearer to the eye than the objects viewed, serves as a constant and consciously annoying distraction to fixation and accommodation. These complex and somewhat contradictory impulses given to the muscles of the eye might very well and doubtless do cause an excessive and unnatural loss of energy and efficiency in case of the prolonged adjustment of the eye needed for a period of work. Translucent shades when made sufficiently opaque to give the necessary reduction to the image of the source, darken too much the upper half of the field of vision and simulate thereby too much the effect given by the opaque shade with the dark lining to give the best results for efficient and comfortable seeing.

8. The observation of motion pictures for two or more hours causes the eye to lose heavily in efficiency. The loss decreases rather regularly with the increase of distance from the projection screen. It seems little if any greater, however, than the loss caused by an equal period of working under much of the artificial lighting now in actual use. In making these tests care was taken to choose a projection apparatus which gave a picture comparatively steady and free from flicker.

9. In all the conditions tested a rather close correlation is found

to obtain between the tendency of a given lighting condition to cause loss of efficiency and to produce discomfort.

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REVIEWS AND ABSTRACTS OF LITERATURE

Les Origines de Connaissance: R. TURRO. Paris: Felix Alcan. 1914.
Pp. 269.

The present volume is the author's complete study of the origin of knowledge, portions of which appeared earlier. The main thesis which the author defends throughout the book is that knowledge, or the intellectual life, has an internal origin rather than an external origin, that it arises through some inner activity and not through the effect of external stimuli upon the sensorium. Thus he says¹ that "nothing is more incontestable than that external objects continuously act upon our organisms and our sensorial mechanism. But the intellectual life does not begin with this action; it begins at the very instant that one reacts upon the external sphere as the result of the trophic need with the resulting blind impulses to movement. Thereupon very complicated adaptations to this external sphere begin to develop and it is by virtue of these adaptations that we acquire the knowledge of reality, of causality, of space, etc." (p. 247). The explanation of this trophic need and the impulses to movement occupy the first 106 pages, the remaining 163 pages being given up to the discussion of the adaptations of the organism to external reality. According to Turro, the issue has been clouded by previous students who accepted instinct as a mysterious force by which the organism is capable of selecting from its environment those elements which shall satisfy the nutritive needs of the organism. Since the primordial fact for an organism is the experience which permits the entrance of food into his organism, the intellectual life begins with the functioning of this instinct in the presence of the appropriate external stimuli. This conception of instinct is due to the failure carefully to distinguish between what is innate and what is learned in an organism's behavior. From a number of experiments and observations the author concludes that the recognition of food is not due to an innate or instinctive consciousness, but is the result of learning. All that the organism has originally is an equipment of more or less coordinated movements which are closely associated with certain internal stimuli to be described later, but not with any external stimuli, such as the common notion of instinct implies. "One is not born with sight, hearing, taste, smell and touch; the most perfect sense begins by being very much like a microscope in the hands of a beginner who does not know how to control the light nor to adjust the instrument. . . . What one learns in this period is truly prodigious" (p. 216).

¹ Wherever quotations are used they indicate free translations of the author's ideas.

This overthrow of all preformed connections between external situations and responses as due to faulty observation or failure to distinguish between original and learned behavior is especially interesting in the light of recent reports of other investigators in this field. Note the work of Yerkes, Thorndike, and Watson, which tends to support the conception of very definite instinctive tendencies. Some quotations from the last-named author, however, bear close relation to Turro's contention. "In the drinking and eating responses of many animals we should expect to find a high degree of completeness even in the initial performance. Chickens, when left to develop naturally in the vicinity of water and food, usually find the water by accidentally pecking at the dish containing it. . . . When the intra-organic stimulation becomes sufficiently intense, which is brought about by keeping the chick from water until the third day, almost any form of extra-organic stimulation will set off the act of drinking." "No one could have predicted that a five-day-old chick, prevented from previous pecking, would start in with an accuracy no greater than that found in chicks 24 hours old. . . . From these experiments it seems safe to conclude that the enormous increase in the accuracy of pecking during the first three or four days . . . is due to the effects of practise as we ordinarily understand the term"² (and not to the maturation of the instinctive mechanism). Here we have statements quite similar to those of Turro by one who has by no means discarded the conception of instinctive mechanism.

Trophic need and the blind impulse Turro develops as follows: Every cell of the organism by its constant activity is consuming certain food products. These nutritive elements are in turn taken by the cell from the "internal *milieu*" to make up the loss. This *milieu* is of very complex composition and is made up of products of intestinal absorption, glandular secretion, and waste products from other organs. A certain equilibrium is maintained in this fluid by means of the "trophic reflex" (beginning at the cell) whose pathways are still unknown, but by which each organ or gland may be stimulated to contribute to the internal *milieu* those of the needed ingredients that it can supply. This is a purely biological process. But when the "internal *milieu*" is depleted through food extraction by the cells, and when the reflex stimulation of glands, etc., does not bring about the needed equilibrium in the *milieu*, *i. e.*, when the needs of the cells can not be satisfied, the trophic reflex continues active. Now, however, the excitation takes a higher path in the nervous system and thereby gives rise to the cry of distress and the sensation of hunger and certain other more or less random movements. The sensation of hunger is in consciousness the counterpart of the trophic reflex in the physiological level, *i. e.*, hunger expresses the trophic need of the organism. Just as the trophic reflex by its stimulation of the appropriate organ or gland supplies the particular food element required by the *milieu*, so the sensation of hunger is the demand for a particular food element, a selective tendency guiding the animal in his choice of food. As the needs of the organism change the hunger varies, *e. g.*, the appetite for fats in

² Watson, J. B., "Behavior," pages 140 ff.

changing to a very cold climate. Hunger may be analyzed into a particular hunger for salt, water, fats, carbohydrates, etc. This specialized hunger is not always apparent to consciousness, but can be best experienced in the case of lack of water, which is called thirst. There is no imagery needed by which the water may be recognized, but the impulse is an organic tropism. It appears independently of the sense organs and before they begin to function. Likewise it may be satisfied independently of them, as by intravenous injections of water. This thirst is to Turro the one primitive impulse. Other impulses are the elementary hungers just mentioned.

If the instinctive tendency which is supposed to enable one to select what is proper for him is discarded, how shall the selection of proper food substances by an animal be explained? The more or less random groping movements bring the organism into contact with external objects. When, for instance, it seizes the breast, it does not know that it contains a liquid which will nourish it,—it will seize any object that is near it in the same manner. It can be conscious of the effect of these movements in satisfying the trophic need only after the effect has been experienced, *i. e.*, after the nutritive elements have been incorporated into the *milieu*. Many repetitions of movements tend to associate them or bind them to certain nutritive effects. In the same way the effect, or satisfaction of the trophic need, is associated with certain sensations gustatory, tactual, olfactory, etc. After such association has been formed between organic effect and sensory experiences, the latter may serve as signs of certain internal effects. For instance, the red dress of the mother or the striking of the clock may be the sign of the coming satisfaction of hunger. The first differentiation among sense experiences results from attention to sense qualities which may serve as signs of certain satisfiers. All sensory discrimination is acquired for this purpose and is never innate. The judgment that the thing which satisfies my hunger is the same as that which now announces itself through the senses is the most primitive and elementary act of intelligence. It is called by Turro "trophic experience." Also the use of the sign for the thing signified is the most primitive act of induction and is the foundation for all logical induction. When an association has been established between a nutritive effect and a sensory experience, the reappearance of the trophic need and the hunger sensation will arouse an image of the sensory sign (association by contiguity). By means of the image, recognition of the object as answering a given need is possible. Just as the satisfaction of hunger is accompanied by certain sensorial experiences, so the appearance of food in the stomach is accompanied by secretion of digestive juices in proper quantity and quality. By association the sensory sign or its image may cause the flow of saliva and gastric juice in preparation for the digestion of the food signified. Much use is made by Turro in this connection of the experiments of Pavlov on the establishment of "conditional reflexes." The latter has shown that quite arbitrary sensory experiences, such as the ringing of a bell, may be made to serve as the stimulus for the flow of the digestive juices. They are conditioned upon the memory of previous experiences.

After accounting for the knowledge of internal effects and the differentiation of sensory impressions as signs of these effects, Turro develops the knowledge of reality, then of reality as external, and causality, all of which are built upon this primitive knowledge or "trophic experience." The discussion is too long to be treated adequately in this review, but brief statements of his conclusions will be given, as far as possible, in translation of the author's words.

One does not perceive aliments in the same way as external objects. In the former we consider the qualities of taste, odor, etc., as signs of an effect upon the organism. In the latter the same qualities are attributed to an external object. The former is the more primitive. How then does the latter develop from the former, *i. e.*, how does our knowledge of the external reality arise? "It is understood by the very nature of the trophic experience that the memory of a certain nutritive effect is associated with a totality of sensory experiences which are always the same. Each day one perceives a certain nutritive effect accompanied by the same visual, tactual, gustatory, etc., sensations. Hence it is not surprising that that which begins by provoking a special experience in each sense, quite distinct from all others, by repetition of the same series tends to bind them all together and that little by little one acquires the perceptive consciousness of individual objects to which these perceptions correspond" (p. 113). For example, the visual perception which corresponds to glass or to plate has a close connection with the auditory perception which corresponds to their respective sounds, and with that which corresponds to the temperature and tactile impressions which each object determines. There thus appears a complex perception, made up of all of these elements and there detaches itself in the intelligence as a unit, the knowledge of what is characteristic of glass and what is characteristic of plate, resulting from association of the perceptions belonging to the different senses (p. 114).

The memory of sensory experiences arises through association with the trophic need of the organism. Movements of the organism also associated with this need are capable of bringing about the appearance of the actual sense experiences. These sensory experiences announce the presence outside of the body, of that which is lacking in the internal *milieu*. The reality to which these sensory qualities belong then takes an independent external existence. The primary function of movement in acquiring a knowledge of externality is strongly emphasized by Turro.

In regard to external causality he concludes: "When we demand what is meant by the word cause, we note first that from the trophic experience arises the knowledge of the reality which is lacking in us, and from the motor experience arises the knowledge that the reality which is lacking is known through sensory signs; the real exterior is known also by these signs, when by means of movement we observe that the same thing which satisfies hunger determines these signs; and from that there formulates originally in the mind the knowledge of something which impresses the senses. This thing we call cause. All that the word signifies is a pure relation of reality with the senses; outside of this relation the word has no significance.

... The real is the possibility of determining trophic and sensorial effects, and nothing more . . . we know that the real exists as a thing because it nourishes us; we know that it is external because the motor experience makes us aware that it is that which impresses our senses" (pp. 241-42).

This review has emphasized especially Turro's discussion of the trophic experience as the beginning of intellectual life and the source of knowledge. His real contribution seems to lie here rather than in the elaboration of the more complex forms of knowledge. In a word, the origin of knowledge must not be sought in the first impressions of external objects upon the senses, but in the trophic sensibility, the consciousness of a nutritive need of the body which may be experienced and satisfied independently of the external senses. He considers introspection absolutely valueless in determining the origin of knowledge and relies wholly upon experimental results for the support of his conclusions. His attempt to solve a philosophical problem by drawing his material solely from the natural sciences is noteworthy.

A. T. POFFENBERGER, JR.

COLUMBIA UNIVERSITY.

The Arya Samaj: An Account of its Origin, Doctrines, and Activities, with a Biographical Sketch of the Founder. LAJPAT RAI. London and New York: Longmans, Green and Company. Pp. xxvi + 305.

A moderate familiarity with current Hinduism suffices to make one aware of two native reform movements, the eclectic Brahmo Samaj, which is not far from Unitarian Christianity, and the Arya Samaj, which is held in more orthodox restraints of Vedic faith. Where such vague knowledge prevails the present exposition of the more conservative movement by one of its leaders will carry curious interest. However essentially Aryaism may be a return to early doctrines with the aid of modern methods, its origin was that of a new religion in the Hindu family, produced in a characteristically Indian way by a personal founder of originality and power. The life of Dayananda Saraswati reminds us at point after point of Buddha's, yet just because Buddha's is typical of his race. He was born in 1824, the son of a Brahmin public official in Kathiawar, north of Bombay, and was reared with stern devotion in the Shiva sect. Early he was started in those Sanskrit studies which equipped him for the scholarly work and controversy of his after life. At the age of fourteen, during a long fast and vigil, he had warded off the sleep to which even his zealous father succumbed, when he spied a mouse safely creeping over the idol and nibbling the offering. From that moment dates the enlightenment which his rebellious intellect thereafter increased. A sense of death came to him through bereavement; diverting interests were planned for him by his parents and a marriage arranged, but he fled from his home, assuming the yellow robe of holy poverty. He sat at the feet of learned men, but could subject his mind to none of them until he found the blind old Virjananda Saraswati, who gave his riotous impulses their true direction. Unlike Gotama, Dyananda never saw his father after his forthwandering. The religion that he organized was a pure and lofty Theism, based, he con-

tended, upon the infallible Vedas, but set round with ethics and sociology which have a very modern look. Rejecting such commentaries and other books as obscured the primitive revelation, he engaged hotly in polemics, appealing to the early psalmody as interpreted by him, yet he stood for the right of private judgment in every one and he opened the sacred writings to all classes. Bitterly assailing the corruptions of the popular religion, he offered himself as a champion of true Hinduism against Christianity and Islam. His followers have succeeded in avoiding so wide a rupture with orthodoxy as that of Buddha; Mahavira, the Jaina prophet, or Nānak, founder of the Sikhs. To the last-named religion Aryaism bears a resemblance which is enhanced by its strength in the Punjab region. By dissecting a corpse found in the jungle, Dayananda proved the falsity of his old medical books. Like Gotama, he tolerated the particular gods, but deposed them from their deity, or otherwise he explained away their plurality. Idolatry he banned, but he found room for a simple ritual after the old style, such as a daily *Homa*, or burning of ghi. The hereditary barriers of caste were broken down: outcaste and untouched might be raised up among the twice-born. Child marriages were forbidden and woman generally elevated, although criticism has been aroused by the provision for unions, in exceptional cases, outside of regular matrimony. In the circumstances of his death, Dayananda brings to mind John the Baptist.

Educationally the Arya Samaj has been aggressive. Its two leading colleges for men are the Anglo-Vedic, at Lahore, where liberal subjects are taught to about 1,000 students, many more being in the connected school, and the Gurukula college on the upper Ganges within sight of the Himalayas, where neophytes, under ascetic discipline, receive such a training almost as might have been given them in the ancient University of Taxila. While western sciences are not omitted, this is primarily a school of Sanskrit.

The Arya Samaj is organized and holds meetings quite after the model of free religious bodies in Europe or America; it has its young men's societies and it engages in philanthropic work such as famine relief and maintenance of asylums for the destitute. Its adherents now number about a quarter of a million. Like other churches the world over, it has been split by a schism, the differences lying in questions of vegetarianism and education. As a movement at once iconoclastic and patriotic, it has naturally been associated, in suspicion at least, with the Indian nationalist propaganda which was active a few years ago. Some of the leaders fell into disfavor with the British officials and it would seem (p. 161) that Mr. Rajpat Rai, the author of this book, suffered deportation. He takes much pains to show that the Samaj is not directly political and that it is not seditious in its principles.

In an attempt to analyze Aryaism religiously, we should realize that Mr. Rai is a zealous partisan, although a fair one, ready to quote from his adversaries. Hence it is only by reading between the lines that one could essay the interesting task of resolving Aryaism into its elements: (1) the true Vedic, (2) the later Hindu, (3) the part original with Dayananda or his teacher Virjananda, (4) that borrowed from other religions—

Islam, the Sikh possibly, but especially from the Christian. Dayananda's early life, it appears, was hardly touched by Western culture and his first discovery of truth was his own; this was suitable to combine with ideas later picked up, as a harmonious system. Though unversed in any European language, he later read the Gospels and he came close to their adherents as an opponent. The Samaj is self-consciously active as an antidote to Christianity, the spread of which Mr. Rai discusses with concern, although he contends that it will not conquer India. Aryaism may thus be compared to Neo-Platonism, or perhaps better to the sublimated pagan revival under Julian. In a social way the Samaj may be conceded to be doing much good, and it is helping to shame Hinduism out of the prevalent superstitions. Western critics, unlike Lajpat Rai, will be prone to regard its insistence upon Vedic infallibility as a defect fatal to its present constitution, for a skeptical, educational movement can hardly abide long under such a dogma.

Viewed prophetically, the Arya Samaj is significant chiefly as one of the responses made by the eastern mind to western stimulus, since that is the method by which we must look for the future of the cultured Orient to work itself out. However impossible may be an essential definition of Christianity, its history shows that it is a fertilizing principle, fruitful in fresh indigenous growths. Men are coming better to recognize that its promotion among such people as the literati of India should be less an insistence upon occidental forms than a supplying with basic data for them to interpret according to their own deep experience.

Mr. Lajpat Rai has made a very readable book. He apologizes for it as being much in the nature of a compilation and excuses hasty construction on the ground that it was planned and executed within eight weeks, in London. Defects of style do not, however, obtrude themselves; his language is exceptionally clear and pleasant. This, indeed, is a gratuity, for not the form, but the matter counts in such a book, and assuredly it is informing. It was written to supply a need for a general account of the Arya Samaj in English, although the author is able to append a useful bibliography of books and other writings in this language. The preface is by Professor Sidney Webb, of the University of London.

EDWARD P. BUFFET.

JERSEY CITY, N. J.

JOURNALS AND NEW BOOKS

THE INTERNATIONAL JOURNAL OF ETHICS. July, 1915.
Perpetual Peace and the Doctrine of Neutrality (pp. 431-447): J. C. MEREDITH. — Neutrality is not necessarily a dignified or meritorious position. Only when "some great powers regard themselves as bound, on their own initiative, to defend and uphold the sacred rights of mankind, the first step will have been taken on the long road that must eventually lead to the establishment of a more ambitious and adequate scheme for making war a continually averted calamity." *What Is Realpolitik?* (pp. 448-468): H. C. EMERY. — The European conflict is construed as a conflict between

political realism and political idealism with an interpretation of political realism as not sordid, but based on a desire to satisfy certain concrete needs. It is also maintained that the choice of objects to be attained present rival claims not easily adjusted from the point of view of relative spiritual values. *Legal Theories and Social Science* (pp. 469-494): MORRIS R. COHEN.—A criticism of the three following dogmas: the theory of the division of power is the condition of free government; the judge's business is to declare the law, never to make or change it; the theory of natural rights. *Betting and Insurance* (pp. 494-497): A. J. DORWARD.—A demarcation of essential differences of events, methods, and ends involved in the two processes. *Private Property and Social Justice* (pp. 498-513): W. K. WRIGHT.—Instead of collective ownership, the moral value of property implies that all individual adult citizens should become owners of and find investment for private property. *Marriage and Parenthood* (pp. 514-517): ELSIE CLEWS PARSONS.—“Until marriage and parenthood get into the social consciousness as distinct and separable facts, our ethics—and our conduct—will be uncertain, confused, and tragical beyond need.” *Ethics and the Struggle for Existence* (pp. 518-539): J. C. FLÜGEL.—The struggle for existence is tending to cease and it is both desirable and within human power to hasten its cessation. *Book Reviews: Rashdall, Is Conscience an Emotion?* FRANK CHAPMAN SHARP. H. W. Laidler, *Boycotts and the Labor Struggle*: W. H. HAMILTON. Eucken, *Life's Basis and Life's Ideal, Present-day Ethics in Their Relation to the Spiritual Life, The Problems of Human Life, Can We Still be Christians?* S. H. MELLONE. A. W. Benn, *The Greek Philosophers*: G. A. JOHNSTON. H. M. Kallen, *William James and Henri Bergson*: A. W. MOORE. *Religio Doctoris*: J. KANTOR. *Shorter Notices of Recent Books*.

THE JOURNAL OF ABNORMAL PSYCHOLOGY. June-July, 1915. *Anger as a Primary Emotion, and the Application of Freudian Mechanisms to Its Phenomena* (pp. 81-87): G. STANLEY HALL.—The movement inaugurated by Freud opens a far larger field than that of sex. The point is made by an illustration of anger, although “fear, sympathy, or the gregarious or social instincts would still better illustrate.” The chief merit of the Freudians is found in the studies of the unconscious, of the “feelings which introspection can confessedly never tell much about, and concerning which our text-books in psychology still say so little.” *Necessity of Metaphysics* (pp. 88-99): JAMES J. PUTNAM.—Philosophy and metaphysics deal more distinctively with essential function—real existence,—while natural science and the genetic psychology deal rather with appearances and with structure. Both are needed in investigation. Function logically precedes structure as no one can doubt who observes his own experience. “The psychologist should sympathize deeply with the anatomist and the physiologist and the student of cerebral pathology, but equally deeply with the philosopher and the metaphysician who study the implications, present although hidden, that point to the bonds between the individual and the universe.” *Aspects of Dream Life* (pp. 100-119): THE CONTRIBUTION OF A WOMAN.—A layman gives a few of the five thou-

sand dreams which she has recalled and written down during three years. *Remarks Upon Dr. Coriat's Paper "Stammering as a Psychoneurosis"; A Criticism* (pp. 120-137): MEYER SOLOMON.—Dr. Coriat does not give the slightest proof nor testimony in support of the ideas in his paper. Its conclusions are impossible. It implies that Dr. Coriat accepts the Freudian theories *en masse*. Reference is made to former articles in which the critic has discussed psychoanalysis. This paper attempts to clear the field of the misunderstandings in interpretations showing how everything depends upon what one means by "sexuality" or "sexual impulse." The Freudian theory in general is attacked. *Abstracts: The Psychic Factor in Mental Disorder*: M. A. HARRINGTON. *A Study of Sexual Tendencies in Monkeys and Baboons*: G. V. HAMILTON. *An Experimental Study of Stuttering*: J. M. FLETCHER. *Reviews*: A. F. SHAND, *Foundations of Character*: ERNEST JONES. William McDougall, *An Introduction to Social Psychology*: M. SOLOMON. *Books Received*.

Durkheim, Emile. *The Elementary Forms of the Religious Life: A Study in Religious Sociology*. Tr. by Joseph Ward Swain. New York: The Macmillan Company; London: George Allen and Unwin. 1915. Pp. xi + 456.

NOTES AND NEWS

JOHN ANGUS MACVANNEL

John Angus MacVannel, Ph.D., professor of the philosophy of education on the Teachers College Foundation in Columbia University, died at his home at St. Mary's, Ontario, on November 10, 1915, in the forty-fifth year of his age.

Professor MacVannel received his formal academic training in Canada and was graduated from the University of Toronto with the degree of Bachelor of Arts in 1893. He received the degree of Master of Arts from the same University in the following year. He then came to Columbia University to pursue advanced studies in philosophy and in educational theory, and in 1898 received the degree of Doctor of Philosophy, his dissertation being upon the subject, "Hegel's Doctrine of the Will." While a graduate student he also served as assistant in philosophy and education from 1896 to 1898, and as lecturer in philosophy in 1901-02, when the staff of the department had to be quickly reorganized owing to the election of the senior professor of philosophy to be President of the University. In 1902 Dr. MacVannel was appointed instructor in the philosophy of education on the Teachers College Foundation, and was promoted to the full professorship of that subject in 1906.

Professor MacVannel was an excellent teacher, and while his early death and the years of illness which preceded it made it impossible for him to fulfil the promise of his earlier years, he had given every evidence of high competence as a critical and productive scholar. His writing, while neither frequent nor voluminous, was marked by fine literary quality, straightforward thinking, and genuine philosophical scholarship. In

the lecture-room he had great facility and skill in making difficult points clear and in reducing a keenly disputed question to its lowest terms of simplicity. His gentleness and kindness of character won him the warm regard and the confidence of all those who were associated with him. His sadly early death brings to an end a career of marked usefulness and promise both as university teacher and as productive scholar in the field of historical and critical philosophy.

COLUMBIA UNIVERSITY.

NICHOLAS MURRAY BUTLER.

The fifteenth annual meeting of the American Philosophical Association will be held at Philadelphia, Pa., on December 28, 29, and 30, 1915, in acceptance of the invitation of the Philosophical Department of the University of Pennsylvania. The sessions will begin on Tuesday afternoon. The meeting will have some special features, which will be announced when arrangements are completed.

The Association meets alone this year, and there will be no joint discussion, and no special topic as at recent meetings. Members of the Association are requested to send to the Secretary, not later than December 7, the titles of papers which they wish to read, and also multiple copies of abstracts in order that discussions may be arranged. Papers are limited to twenty minutes in reading, and abstracts to four hundred words. All titles sent to the Secretary are, together with the abstracts, submitted to the Executive Committee, that it may make up the programme.

Membership blanks will be furnished on request, and should be so filled out as to give full information regarding the candidate's qualifications. They should be sent to the Secretary by December 23.

In order that various details concerning the meeting may be arranged, members are urged to inform the Secretary if it is their intention to be present. At a later date information will be given concerning trains, hotels, and other accommodations.

(Signed) E. G. SPAULDING,
Secretary.

PRINCETON, N. J.

The twenty-fourth annual meeting of the American Psychological Association will occur on December 28, 29, and 30 at the University of Chicago. The annual dinner-smoker with the address of the president, Professor John B. Watson, on "The Place of the Conditioned-Reflex in Psychology," will occur at the Quadrangle Club, Wednesday evening, December 29. A special feature of the program will be a discussion of the relations of psychology to the subjects of philosophy, of science, and of pedagogy in the curriculum. The local member of the executive committee, in charge of the meetings, is Professor H. A. Carr, of the University of Chicago. Communications which concern the program may be addressed to the secretary, Professor R. M. Ogden, at Lawrence, Kansas.

Dr. Savilla Alice Elkus, formerly instructor in philosophy at Vassar College, has accepted the position of assistant professor of philosophy at Smith College.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

COMPARATIVE STUDY OF SPINOZA AND NEO-REALISM AS INDICATED IN HOLT'S "CONCEPT OF CONSCIOUSNESS"

IN the temporal order of things, it is a long way from Baruch Spinoza to Edwin Holt, but certain similarities—one is tempted to say identities—in method and tone of thinking make them more like neighbors than ancestor and descendant in the philosophic domain. The student of philosophy who, like the poet, hobnobs with the past and the distant until these rigid categories seem quite dissolved, notes in the systems of these two men, more than apparent differences in content, surface resemblances that invite study and promise conclusions. I refer to a devoted and passionate use of mathematical form—dominant in Spinoza's style and Holt's thinking.

A similarity of background, more than chance coincidence of interest and mode of expression, lies responsible for these mathematical flowerings in philosophy. Preceding Spinoza and contemporary with him, the sixteenth and seventeenth century science, with its discoveries associated with the names of Copernicus, Galileo, Kepler, and Newton in physics, astronomy, and mathematics, contributed new significance and power to the last, and stimulated a fruitful interest in its methods and scope. Descartes, incorporating the new "scientific method"—as yet no other than the "mathematical method"—into philosophic speculation, set the fashion for expressing metaphysical truth in terms of equations, axioms, and propositions. Spinoza fell in with the styles, and ordering his theories like a treatise of Euclid to the point of being inordinately abstruse clearly became an extremist in the latest fashions. The mathematical character of the new truths made it seem inevitable that in the unity of nature all truths must be mathematical; precisely as in the later nineteenth century the advances in chemistry, physics, and biology, accompanied by a growing use and emphasis of the number science, has persuaded Holt that both the stuff and form of being are mathematical. Behind Holt and contem-

porary with him is what he chooses to call the "Renaissance of Logic" in the forms of symbolic logic, or algebra of logic.¹ Every laboratory contributes to the mathematics that is in the air, and makes the dominant coloring of Holt inevitable and representative.

Spinoza, as a radical devotee to mathematical method, treats of the nature and force of emotions as he treated mind and substance—exactly as he "would treat lines, planes, and bodies," for, as nature and her laws are uniform, the manner of comprehending her must likewise be so. Indeed, the universal laws are themselves this manner. In short, Spinoza sees nature to be logical and mathematical, and inevitably makes his treatment such. Holt, in turn, finds mathematics and logic to be the basic sciences, the sciences of pure being; for him, consequently, all things that *are* must be subject to these sciences. To anticipate conclusions later to be developed, Holt, like Spinoza, finds nature uniform, after a fashion, in law and substance; but he goes Spinoza one better, for where Spinoza finds nature to be profoundly modified by mathematical and logical entities, Holt finds her to be entirely constituted of such entities. Spinoza, although not so frankly stating it, even more radically implies this in his geometrical style of presentation; whereas Holt is content to use what in his own terminology he would call the "more complex" style of ordinary English exposition.

This apparent formal resemblance will be found to be not merely historical in origin and not the one resemblance. A hasty objector will remind one that Spinoza is a semi-medievalist, a rationalist, a pantheist, and a monist; whereas Holt is a modern, a radical empiricist, a pluralist, and a realist, and that their only possible kinship is their brotherhood through Adam. In answer, the purpose of this paper is to show that in Holt and Spinoza, these differences are in a great part verbal, and that the mathematical characteristics on the surface of these philosophies come from common fundamental similarities which I propose to trace, and in the tracing of which, I propose to indicate the fundamental divergences as well. This is less an attempt to wrench meanings from their temporal moorings and bring Spinoza up to date than to suggest by how much Spinoza has anticipated contemporary neo-realism. As the Spinozistic philosophy in its ethical and political aims is the more comprehensive of the two, I am for the most part compelled to disregard Spinoza's priority in time, and to adopt and compare his conceptions to those

¹ Holt opens his book, "The Concept of Consciousness" with the acknowledgment that "recent investigations in this field (symbolic logic) have brought out a number of new truths . . . which seem to me to bear importantly on philosophy as a whole, and especially on epistemology." He then proceeds to review the work germane to his purpose of Russell, Poincaré, Huntington, Franklin, and others.

of Holt. This will necessitate following Holt's order of exposition rather than Spinoza's.

I

METHOD

Similarity in Method of Understanding; Differences in Method of Procedure.—Method in philosophy divides itself into epistemology—method of understanding; and technique—method of procedure. "How we know" is given preference even to "what we know," and so it is conventional to discuss first the "how we know" of Spinoza and Holt. For Spinoza, the matter is summed up rather shortly in his "Tractatus de Intellectus Emendatione,"² where method is defined as knowledge reflecting upon itself, seeking to find the best means of understanding. In this definition, the power of direct or intuitive perception is implied. The intellect must of necessity be granted as capable of obtaining a true, an immediate, and an adequate idea of its object (*ideatum*), or the thinking process could never go on; for once the validity of knowledge be questioned, the proposed method of knowing must first be tested by a "method" of a method, and so on *ad infinitum*. If we have to prove that we know, we will have to prove how we know we must prove that we know, etc. Consequently, the existence of method must postulate the existence of intuitive or self-guaranteeing knowledge. Searching for the best method, Spinoza finds the adequate mode of perception to be that "wherein a thing is perceived through its essence alone, or through a knowledge of its proximate cause."³ Perception through essence alone is another term for "true idea," which is no other than intuition.

Holt is a radical empiricist who emphasizes "being" rather than "being experienced" as the fundamental reality, fundamental because universal and because its negation is impossible. "*Being not* are words without meaning."⁴ Avoiding a discussion of the pragmatist's possible comment that "without meaning" can only mean inexperienceable, and the rationalist's comment that "without meaning" can only mean unthinkable, and hence the Holtian term "being" is merely shorthand for "being experienced" or "being thought," we find in Holt no criterion for the detection of the reality of "being" apart from its own existence. Precisely as in Spinoza, true knowledge of "being" is immediate, is assumed, is intuitive.

One apparent difference (to be noted, though not to be accepted)

² Spinoza, "Tractatus de Intellectus Emendatione," Sec. IV.

³ *Idem*.

⁴ Holt, "Concept of Consciousness," page 21.

is found in the Spinozistic statement, "A true idea is something different from its object (*ideatum*). For a circle is one thing, and the idea of one another."⁵ Holt would maintain a thought to be the same as the thing thought of, and we hope later to show a fundamental similarity in the two positions.

A real disagreement, however, is to be found in their methods as methods of procedure. Spinoza's method of understanding, we have found, postulates intuitive or true knowledge, and the best method becomes the one that reflects upon the truest knowledge—the truest idea; and Spinoza finds that the only idea whose content is a guaranty of its reality is the idea of the Whole. Only the Whole (God, Reality, *Ens Perfectissimum*) is self-dependent and self-contained. Consequently, Spinoza in his treatment of the universe proceeds from the Whole to the parts, logically deducing the properties and relations of the parts from his postulations regarding the Whole. He begins with a definition of God or Substance from which he draws various conclusions as to the relations between the parts and as to the nature of God, who is the Whole; then proceeds to a discussion of the nature and origin of the mind in man; and then of man's emotions; and so places himself in a position logically to exhibit the ethical values which are the purpose of his work. The Whole with which he begins is perforce richer and more complex in qualities and attributes than any of the parts; and the parts, as they are (artificially) subdivided by the inquiring man, become more meager and limited in cosmic virtues.

Holt purposes to begin, exactly as Spinoza, with a self-dependent "given" from which—not in complex-to-simple, but in simple-to-complex order—he will logically deduce the teeming, intricate structure of the Whole. This completely self-dependent he exhibits in "being"; whereas Spinoza finds the completely self-dependent in "being everything." Holt's "being" is indeed the simplest of terms; but, in deducing the complex from this simple, he is compelled to add constantly to his "given" (in a manner which we will presently describe in detail) with the result that his method is not deductive so much as synthetic. The entire movement of Holt's exposition must be conceived of as an accretion of complexities; of Spinoza's, as deduction from complexities.

This opposition of movement in method will be apparent in a short résumé of substance, as defined by both philosophies.

⁵ Tract., paragraph 33.

II

SUBSTANCE

Substance for Spinoza: Attributes, Modes, Individual things; relations between Idea and its Object—Substance for Holt: neutral entities, their hierarchy in simple to complex order—Differences in movement and similarities in content in the two conceptions of Substance—Introduction of causal element, showing likenesses in concept of definition

Substance, for Spinoza, comprised the whole universe, the whole realm of being. "I understand substance to be that which is in itself and is conceived through itself: I mean that the conception of which does not depend upon the conception of another thing from which it must be formed."⁶ The only thing to be so conceived is everything, for everything alone stands uncaused, and independent of anything save itself for existence. A synonym in Spinoza for this substance is God.⁷ God, substance, or everything exists for man and is revealed to man in two attributes of its infinite being: it exists and is revealed in extension and thought. "We neither feel nor perceive any individual things save bodies and modes of thinking."⁸ As a self-sufficient fact, however, substance consists of infinite attributes—ineffable and unknowable to man. All possibilities, all realities past the power of man to think or feel exist in God;⁹ but, so far as man is concerned and can be concerned, the universe is limited to thought and extension, to the old, familiar mind and matter. Furthermore, these two attributes are apparent to man in modifications—facets or aspects of substance which depend upon their attribute for conception, and which are designated modes.¹⁰ Thus, table, as a generic term, as a tribe, is a mode (or modification) of the attribute of extension. Finally, the lowest step in the descending order of particularization is the individual thing which enjoys a limited, finite existence in a designated mode:¹¹ *This* table is an individual thing existing in the tabular mode of extension which, itself, is an attribute of the all-inclusive substance. However, *this* table has being not only in the world of extension (as revealed to my tactile and visual senses), but also in the world of thought. As an idea, it is an individual thought, existing in the general idea (mode) of the class "table." This class, itself in its turn, is a modification of that attribute of substance designated thought. In the nature of the universe, the rela-

⁶ Spinoza, "Ethics," Pt. L., Def. III.

⁷ *Ibid.*, Pt. L., Def. XIV.

⁸ *Ibid.*, Pt. II., Ax. 5.

⁹ *Ibid.*, Pt. I., Prop. XI and XVI.

¹⁰ "Ethics," Pt. I. Def. V.

¹¹ *Ibid.*, Pt. II., Def. VII.

tion between the attributes of thought and extension is in one sense parallel, immediate, and inevitable, and in another sense does not exist at all. Everything found in the world of extension is likewise in the world of thought, and conversely. This follows inevitably from the fact that all things pertain to substance, and substance is invariably expressed in the two attributes (as well as in an infinity of others) of extension and thought. But on the other hand, no causal relation exists between these attributes, because, as substance, they are identical.¹² Accordingly, table as thing does not cause table as idea; rather, table as thing is caused by an infinite causal chain of previous things in extension; and table as idea is caused by a parallel infinite causal chain in thought. Hence the substantial reality of table is one thing, which takes its place as extension or as thought according to the causal series with which it is connected; its essence is the same in both extension and in thought.

Holt, in his search for a fundamental upon which to begin philosophizing, might well have used the words of Spinoza, and have said, "I am looking for 'that, the conception of which does not depend upon the conception of another thing from which it must be formed.'" This desideratum Holt finds in the category of simple, unattired "being." Instead of beginning with the most complex and inclusive—with everything—he begins with simplest and most meager, with the first step above nothing, with modest "being";¹³ and yet his "being" fulfils the definition, in words, though not in content, of Spinoza's "everything." Extremes, according to their inveterate habit, meet. Holt finds "being" to be a logical concept, made of logical stuff, and as such is neither mental nor material, for the reason that it is both. To such stuff, he applies the term "neutral."¹⁴ Granting for a moment the immemorial warfare in philosophy between mind and matter, Holt wishes to distinguish a class of neutral entities, or "beings," which because of their immense stakes in both sides may be said to belong to neither. Intensities (of color, sound, or what not), velocities, number series, processes, "laws of nature," and the stuff of logic can not be ranked as exclusive to either army. Like the Jews in Poland, they are found fighting in all ranks. Upon examining the rights of these neutrals, Holt discovers that they include all the rights for which the belligerents are contesting, that the belligerents themselves are in fact neutrals fighting under the false flags of "mind" and "matter," and that these neutral entities are the stuff of which all reality is made. Logic offers Holt a neutral inch, and he takes

¹² *Ibid.*, Pt. II., Prop. VI.

¹³ Holt, pages 20 *et seq.*

¹⁴ *Ibid.*, pages 113-114.

a universal ell. One is likely, at first consideration, to find the notion of the ponderous mountains, sailing clouds, and the piercing thoughts of man as such stuff as syllogisms are made of rather grotesque; but familiarity in this case breeds conviction, and it is hard to escape from a reading of Holt's arguments without believing that there is more in his philosophy than one dreamed.

In accordance with the demands of logical structure, Holt proceeds to describe the universe as a neutral mosaic of logical entities, capable of deduction in a simple to complex order, a hierarchical order inherently logical and asymmetrical.¹⁵ Holt's theory is that if the universe is a logical complication of neutral entities, in which different stages of complications can be distinguished, then, by the granting of an appropriate "given," each stage can be logically deduced from the previous one. Thus, if you begin with the generally recognized neutral world of mathematics and formal logic, you may tentatively outline a "logical deduction" of the entire universe, using for a criterion of simplicity the universality of the entity by means of which you develop your deduction. The validity of such a deduction depends upon your ability to pick the proper terms to begin with, and to discover the correct propositions which, acting on these terms, generate the deductions you are seeking. Suppose you take the term, *A*, and then allow the proposition, "*A* repeats itself" to act indefinitely upon this term. The whole system of numerical integers is the astonishingly complex result from this simple beginning, and the web of complicated relationships and intricate states of fact to be deduced from the system is appalling.

Next, suppose you consider all primary mathematics and logic, despite their internal complexities, to be the simplest system of logical terms, relations, and propositions based on the primordial "being"—and such it probably is. The problem then is to find the next simplest system, the system that is one degree more complex, the system that can be logically deduced from correct propositions acting upon mathematics and logic as a "given." You will probably find the traditional "secondary qualities" of Locke, etc., to have "purely ordinal" properties of several dimensions with varying degrees of intensity. Sound and light are notoriously reducible to mathematics, and the spectrum is so completely describable in terms of numbers that it is not an Icarian flight to imagine that, with the proper propositions, the secondary qualities could be deduced from that mathematics which we have decided is the simplest neutral system. Colors, sounds, odors, etc., range second, therefore, in a simple to complex gradation of the neutral realm. Then, perhaps, comes geometry (extension in space) with the various

¹⁵ *Ibid.*, pages 154 *et seq.*

branches of higher mathematics; above these in due order rise mechanics (introducing mass and motion); physics; chemistry; large masses studied under astronomy and geography; organic matter as treated under botany and biology; mind, that is, the substance of psychology, anthropology, history and biography; and lastly, values—the good, the beautiful, the true. Certainly, chemistry, in the close analysis, reduces itself to physics; life reduces itself (in the opinions of many) to chemistry; and biography is a complex particularization of biology. Such a universe—the actual universe—is thus conceived as one in substance, and many only in complexities. “Being” is the most universal, and at the same time the simplest entity, and it should be noted that the more you add to it, by repeating itself, the more particular your description becomes. A man, the most individual of all things that we know of, consequently contains the richest and largest number of complexities.

The opposition of movement in the two philosophies can be seen at once. Spinoza holds that not man, but God—not the particular, but the concrete universal—includes the greatest number of complexities, for his fundamental substance is, in Holt’s sense, infinitely complex. Spinoza is a magician whose hat is the universe from which he takes all things. Holt, in an equally magical, but genetically contradictory fashion, makes all things grow logically from the universal seed of “being,” as a pot of flowers sprouts from a thimble under an illusionist’s wand.

A somewhat close comparison will, however, reveal a number of similarities. So far as man, and therefore any discourse, is concerned, the universe of Spinoza is *duplex* in its inevitable manifestations as extension and thought. The remainder of the infinite attributes in which substance disports itself is irrelevant because unknowable. If put to it, Holt would also admit that his neutral stuff (so far as human discourse is concerned) constantly appears in two systems of relations, the so-called “mental” and “material,” and that his neutral stuff never appears *outside* either of these systems. In two smashing chapters, “The Substance of Ideas” and “The Substance of Matter” in which he pulverizes mind and matter into an elemental neutral substance, Holt still does not deny the being of mind and matter.¹⁶ He only denies¹⁷ their difference in substance, but maintains their differences as two *classes*¹⁷ or *manifolds*¹⁸ of the same substance. I shall elaborate later precisely what Holt means by *manifold*, but sufficient is hinted in saying that he describes two—the “conscious manifold” and the “physical mani-

¹⁶ *Ibid.*, page 132.

¹⁷ *Ibid.*, page 135.

¹⁸ *Ibid.*, page 126.

fold" corresponding to the ordinary terms, mind and matter. He avows the difficulty, indeed, of placing such palpably neutral entities as mathematical concepts exclusively in either manifold, but nowhere denies that all subjects of human discourse must appear at least in one of the two. I hold not my life so lightly as to hint that Holt is dualistic, but am merely pointing out that Holt's conception is *duplex* (as is Spinoza's) in that it admits mind and matter to be distinct (in class, though not in substance) and distinguishable. The similarity between Holt and Spinoza can be made more marked by transposing the terms without impairing the sense of either philosophy. Spinoza's substance is neutral stuff appearing in two systems of relations, classes, or manifolds—the mental and material. Neither mentality nor materiality as a distinct something is real for Spinoza; only substance is ultimately real. Similarly, Holt's neutral mosaic is revealed in two attributes, thought and extension.

The introduction of the causal or dynamic element into what would otherwise constitute static universes will further emphasize the similarity and the difference. Spinoza defines everything in his universe either in terms of its essence, which we have shown to be no other than the content of an act of intuition, or in terms of its proximate cause. As Spinoza finds that only everything can adequately be conceived in terms of its essence, that is, as self-dependent, the universe, when not considered as a whole, must always be conceived dynamically, actively, in terms of cause and effect. The perfect definition of anything is such, says Spinoza "that all the properties of that thing . . . can be concluded from it."¹⁴ Holt might well have said this. In fact, Holt, using the logical methodology, defines everything either in terms of a "given," or in terms of a proposition or law, which acting upon such "given" permits a logical deduction of the thing defined.²⁰ Undefined terms compose the "given," terms which are merely exhibited or named, which are raw metal stamped with the sterling-mark of "intuition." Such undefined, intuitively perceived terms coincide with "things perceived through their essence" as required by Spinoza. When we come to compare "proposition" with "proximate cause," we find Holt explicitly stating that "causality and logical necessity are one."²¹ "Causality," natural law, physical activity is precisely what Spinoza means by "proximate cause," and "logical necessity" is precisely what Holt means by "propositions"; and, as Holt affirms, they are one. For example, suppose you set out

¹⁹ Tract., Sec. XIII.

²⁰ Holt, page 16.

²¹ *Ibid.*, page 132.

to define a circle. Following Holt's recipe, you collect an appropriate "given"—in this case, a straight line of which one end is fixed and the other movable. To define the line is not required; you assume it and merely exhibit it. This is what Spinoza would term "perceiving it through its essence"; an absolute knowledge of the nature of a straight line is granted you. You now permit a proposition, or proximate cause, to act upon the line. If you are wise, you will select a certain proposition which is algebraically expressed as " $x^2 + y^2 = r^2$." The line revolves, and the figure described by the free end is a circle. And so Spinoza maintains that a circle should always be defined "to be a figure which is described by any line of which one extremity is fixed and the other movable, for this definition clearly comprehends its proximate cause."²² It is not to be understood that the proposition describes the circle in the sense that words describe a picture; the proposition, acting on the terms, *makes* the circle; the laws of gravitation *make* bodies fall; causality is real.

These likenesses are all in the matter of definition. With respect to the actual universe defined, occasion shall be taken to show that while Holt, like Spinoza, conceives the universe as changing and dynamic, the shortcomings of logic do not permit him adequately to express this idea of change. Logic is obstinately static, and Holt hardly overcomes this handicap. In sum, however, the language of the two men can again be happily transposed. "*Natura Naturans*," the active, changing, creative universe of Spinoza is the totality of "propositions"; and "*Natura Naturata*," the passive, static, and immutable universe is the totality of all possible "Givens," of all terms and relations.

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(To be continued.)

ARE ALL JUDGMENTS "PRACTICAL"?

IT must be some time since anything has appeared in America that marks such a definite and important advance in logical theory as Professor Dewey's article on "The Logic of Judgments of Practise."¹ It appeals to me not only by the admirable lucidity and thoroughness with which it clears up inveterate ambiguities in terms (like "value," "valuation," "objective," "end," etc.) which have long obstructed progress, but also by the boldness with which

²² Tract., Sec. XIII.

¹ This JOURNAL, Vol. XII., pages 505 ff.

it carries the war into the enemy's country, and challenges what for purposes of reference I must call the old intellectualist tradition in logic to show cause why it should not be condemned for failing even to notice the existence of an extensive class of judgments which have a distinctive verbal form and a distinctive object in something to be done in the future, and so for failing *theoretically* to explain their logical importance. This procedure entirely accords with my own endeavors to exhibit the *theoretic* defects of intellectualism,² and appears to be excellent tactics, because it transfers the battleground from psychology to strict and formal logic, and so disposes of the facile contention that pragmatism is "psychology," and therefore does not concern "logic," which is "independent" of psychology. The logic of real thinking is thereby extricated from the mass of psychological prejudices that oppose, and threaten to choke it, so long as the question is formulated as one concerning the bearing of psychology on logic. Professor Dewey has evidently discovered (as I too have done) that psychologically the case for any reform is always weak, and that the real strength of intellectualism lies, not in its logic or in any appeal it makes to reason, but precisely in the subtlety with which it panders to powerful psychological instincts, such as the desire for rest and finality and relief from doubt. It appears to be at bottom this form of intellectual indolence which generates its reluctance to conceive knowledge as always on the move and as radically and essentially progressive and explains its clinging to a pre-Copernican absoluteness and fixity of terms, meanings, and other constituents of the conceptual cosmos, which can be approximately realized only by degrading them into words that preserve their "form" in whatever context they are used. Professor Dewey circumvents and leaves behind this whole body of prejudices by invading the logical ground on which vast herds of universals, propositions, and syllogisms have always been supposed to be browsing peaceably and securely, by drawing attention to the enormous omissions which are perpetrated in the intellectualist census of this population, and by pointing out that there exist goats as well as sheep and even ravenging wolves.

But he mixes admirable caution with his boldness when he puts aside the question whether the discrepant types he instances are not all there is and contents himself with showing that *some* judgments at least are "practical," without discussing whether his doctrine does not apply also to those which are commonly called "theoretic." His arguments are, however, so convincing that they may well render it opportune to raise also this further question, and

² Cf. D. L. Murray's "Pragmatism," page viii.

this is what I shall attempt to do. Granting that there is a definite class of "practical" judgments, recognizable by the fact they exhibit an *is-to-be* in their copula instead of an *is*, imply a reference to something to be done and appeal to the future for a decision as to their value, and so as to their truth or falsity, and taking only the precaution of observing that this practical import may be latent and must not be *assumed* to be absent wherever it is not expressed in so many words, let us ask whether, as a sheer matter of logical fact, this type is not discernible in *all* judgments?

It appears to me to be hardly possible to give anything but an affirmative answer to this question. If, that is, we are careful to concern ourselves with real judgments, and refuse to have "propositions," mere verbal formulas, foisted upon us. This conclusion results from a number of converging lines of reasoning. It may be reached, for instance, by raising the questions of the context of the apparent "theoretic" judgment, and of the motives and aims of its maker. But one has learned from painful experience that numbers of philosophers believe that such questions can be burked by calling them "psychological."

So it is better to insist on the logical implication of the unquestionable fact that every judgment must be regarded as the product of a *selection*. Now by this we should not mean merely the obvious fact that the maker of any judgment may have alternatives in his mind before, and while, he makes it. We should refer rather to the more general fact that every judgment, whether true or false, has somehow to be selected from the whole body of possible judgments, which may be, or be thought to be, relevant, directly or remotely, to the occasion upon which it is made. This appears to be a logical fact of the utmost generality and importance. It can hardly be denied, once we emancipate ourselves from the paradoxical theory, that it is the duty of every judgment to enunciate the totality of truth, irrespective of its relevance to the actual occasion. This theory not only demands an impossibility which no judgment is capable of achieving, but involves the fatuity that every judgment should become one with every other, and overlooks the most obvious characteristic of actual judgments, *viz.*, that they are meant to convey, not all truth or truth in general, but *relevant* truth.

If then every judgment is a selection from an indefinitely wider body of possible alternatives, and must be logically conceived as such a selection, it becomes proper to ask, (1) how is such a selection conceivable? and (2) why should such a selection be made?

1. No reason for selection can be derived from the mere notion of a coherent system of truth, alike whether that system is conceived Platonically, as static and rigid, or as dynamic and progressive. For

just in so far as the system coheres, it forms an integral whole in which truths inhere and out of which they do not fall. If, therefore, there are to be separate truths at all, they have to be taken out of their systems by force. The selection which constitutes the separate truth must sever the judgment affirmed from its systematic logical context and must pretend that it can exist, or be used, apart from it. But must not this procedure always appear as an interference with "fact," as an arbitrary *act* which does violence to the logical connections of the subject? It must, moreover, always involve a *risk*, not merely general, but perfectly specific. As representing absolute truth the judgment is disqualified *ab initio* by being a selection: that is admitted, and does not matter. The real risk of error to which it is subject consists in the fact that even for the purpose in hand what has been selected may not have been precisely what was required, but either too little or too much. *I. e.*, the selection, though it may be "true," *i. e.*, part of "the truth," may not be the really relevant part, and so for the purpose of the reasoning it may be a "mistake." There is, therefore, need for some one who will take upon himself this risk of *selecting rightly*, and in default of such a person there can not be any judgments for logic to consider. A selective *agent*, therefore, must be found to take the risk which every selection involves, and his selection plainly is an *act*. In this sense, and to this extent, it appears to be undeniable that a factor of "arbitrariness" and dependence upon a "subject" enters into the very notion of a judgment.³ To abstract from this, as logic has hitherto done, involves a *fiction*, which ought to be explained and justified, or else abandoned.

2. The conception of a judgment as an act which implies an agent to make it and to risk the consequences, only becomes more impressive when we pass to the second question as to *why* the selection (which is the judgment) should be made, for it is then clearly seen to be impossible to account for this without a reference to the ends and means of the agent. A certain selection from total truth is made, because it is judged to be relevant to the agent's purposes. It must, moreover, be judged to be *preferable* to any *other* selection which in abstraction from his purpose and situation might equally be called "true." In cases where the judgment has actually been preceded by deliberation there was, of course, mental awareness of the superiority, or *better value*, of the selection made. In cases where the appropriate selection seemed so evident that no consideration of alternatives seemed requisite, there is always logically a possibility of revising and reversing the judgment after it has been made. In either case, the judgment made was chosen be-

³ Cf. my "Formal Logic," pages 23, 120.

cause it seemed the *best* its maker could think of. A reference therefore to a "*good*" aimed at, and a valuation performed, by the maker of the selection is always formally implied. At least "logically," if not also "psychologically." To put it otherwise, no one can be conceived as making and upholding a judgment, unless he is convinced that it is a better judgment to make than any other, and the *best* for the occasion which evoked it. For had he thought of a *better*, he would, of course, have made *that*.

We arrive then by a different route at the valuations which Professor Dewey has so admirably shown to be a kind of practical judgment. And if *all* judgments imply a valuation, are not all judgments practical? If all judgments are *acts* and aim at "*goods*" and claim to be "*better*" than others and the "*best*" conceivable, need we hesitate to declare that they are "*practical*"? Surely the judgments called "*theoretic*" do not differ from those admittedly "*practical*" in these vital respects. True, the good they refer to is that of any "*end*" any agent may desire and aim at; it is plainly not restricted to specifically moral or material goods, and covers also the ends of the "*theoretic*" sciences; but what of that? It is surely time that the critics of the new logic should give up confounding these two senses of good,⁴ and recognize as the superior genus the older, and more comprehensive Greek sense, which equates *ἀγαθόν* and *τέλος*. True, also, the so-called "*theoretic*" judgments do not, as Professor Dewey notes, usually declare a reference to an act to be done *in their verbal form*; but what of that? Is there not always such a reference, when we trace them back to their occurrence in an actual situation in which a choice has to be made between one judgment and another? This choice is surely an act, a something-to-be-done, whether or not it is expressed in words which advertise the fact: abstract from this implication of a choice, and you destroy the judgment. It is, however, easy and fatally seductive, to take the words of the judgment in abstraction from the occasion on which they were used: for the words retain their form and a sort of meaning acquired by past usage. This "*dictionary-meaning*" certainly has not, as such, any reference to any practise. But it is not strictly actual meaning at all. When, therefore, we make this abstraction and talk about dictionary-meanings we ought not to deceive ourselves and to continue to talk about judgment: we have by this abstraction substituted the "*proposition*" for the live judgment, and radically altered its logical character. We are henceforth dealing with "*forms*" whose "*meaning*" is merely potential. Thus we finally come upon the question which every conscientious logician

⁴ They are easily distinguished by their opposites, "*bad*" and "*evil*."

should continually ask himself and which not even the most conservative will be able to shirk for ever, *viz.*, whether this substitution of the proposition for the judgment is not the essential fallacy of Formalism, and the very doctrine which is nearest and dearest to the heart of intellectualist logic?

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SOCIETIES

NEW YORK BRANCH OF THE AMERICAN PSYCHOLOGICAL ASSOCIATION

THE New York Branch of the American Psychological Association met at Columbia University in conjunction with the Section of Anthropology and Psychology of the New York Academy of Sciences on April 19. There were afternoon and evening sessions, with dinner at the Faculty Club. The following papers were read:

Relative Performances of Negroes and Whites in Some Mental Tests.

—G. O. FERGUSON, JR.

Tests were made upon 486 white and 421 colored pupils in the grammar and high-school grades of Richmond, Fredericksburg, and Newport News, Virginia. In the Woodworth and Wells "Mixed Relations" test, and in the Trabue "Completion" test, the colored children scored approximately three fourths as high as the white children; in the "Columbia Straight Maze" test there was no appreciable racial difference in ability; in a cancellation test the colored girls were slightly superior to the white girls, and the colored boys did as well as the white boys.

The colored pupils were divided into four classes on the basis of racial purity as indicated by skin color, hair texture, and facial and cranial conformation. In the mixed relations and completion tests, the pure negroes, the negroes three-fourths pure, the mulattoes, and the quadroons scored respectively as follows: approximately 60, 70, 80, and 90 per cent. as high as whites.

The variability of the colored pupils as a whole was fully as great as that of the whites, likewise the variability of the mulattoes. But the pure negroes, the negroes three-fourths pure, and the quadroons were somewhat less variable than the whites. The results of the experiments will be published in full in the *Archives of Psychology*.

Distribution of Time in School Exercises.—ROBERT A. CUMMINS.

The investigation concerns the practical application of the laws of memory in such public-school exercises as geography and history, and deals with the relative advantages of an irregular distribution of time as compared with the regular distribution which is commonly used in the arrangement of the school programme.

Subjects.—The subjects used in the experiment included pupils in grades from the third to the seventh, a total of 699.

The seventh-grade pupils were in the Rutherford, New Jersey, public school and were mostly Americans of good social standing. Those of the other grades were from the Lyndhurst, New Jersey, public schools and represented about 50 per cent. of foreigners, mostly Italians and Poles, and were of a rather low grade of economic and social standing.

Materials.—The standard one-column addition sheets of Thorndike were used with the third and fourth grades; the division sheets devised by Kirby were used in the fifth grade; in the upper grades the geography and history material used was devised by the writer and consisted of a selection of principles and facts of geography condensed into brief sentences and printed on sheets 6 x 9 and 6 x 12 inches. These sheets were passed out for study. These, after a given length of time, were taken up and other sheets passed out. These latter sheets were the same as the first ones except that all the *important* words were omitted and the numbers, which, by the way, were placed in parentheses in front of these words on the study sheets, indicated the missing words. The pupils were required to write on separate scoring sheets as many of these missing words as possible in a given time.

Task.—The task assigned in all the grades consisted in *doing* the exercises in addition, division, geography, or history, as the case might be, so many minutes, say 5, 10, or 15, per day or per every other day, or what not, according to the arrangement of the time schedule for each group. A total of 115 minutes was used with the third and fourth grades doing addition. The same time was used with the fifth grade doing division, the measurement being taken from the mid-point of the initial fifteen minutes of practise to the mid-point of the final fifteen minutes of practise, *i. e.*, 100 minutes of practise were measured. In the case of the sixth and seventh grades doing geography and history a total of 120 minutes was used in the experiment, the measurement being taken from the mid-point of the initial fifteen minutes of practise to the mid-point of the final fifteen minutes of practise, *i. e.*, 105 minutes of practise were measured.

Distribution of Time.—Several different schedules of time distribution were carried out, which can not be described here in detail, but suffice it to say that the main comparison was made between a regular distribution, *i. e.*, 15, 15, 15, etc., or 10, 10, 10, etc., per day, or per every other day, as the case might be, with an *irregular* distribution, *i. e.*, 15, 15, 10, 10, 5, etc., or a decreasing number of minutes and an increasing time-interval between the periods of practise.

Time of Day.—No special effort was made to keep the time of day constant. Some classes worked in the afternoon and some in the forenoon. A check was kept on this and no appreciable difference seems to be manifest by this factor.

Stress.—In the beginning it was aimed to stress accuracy at least enough to keep up to the standard set in the initial practise and if possible to show a consistent gain in same. This was done.

Conductors of the Experiment.—The writer personally conducted all the initial and final practises, the entire experiment with the sixth and seventh grades and practically all the work with the lower grades. In a few instances it was impossible because of lack of time to get around to all the sections at the time appointed, and in such cases the teacher took charge of the practise. All the teachers were in the rooms during all the work and consequently were able to take charge without any change in either the stress or the method.

Conclusion.—The results show an improvement of about 50 per cent. in addition, 100 per cent. in division, and from 50 to 150 per cent. in geography and history, with a noticeably larger increase in case of the groups working according to the irregular distribution of time. In point of accuracy there was an increase of 1 to 9 per cent. in all cases. The experiment seems to warrant the conclusion that an irregular distribution of time is more advantageous in the case of such school subjects as are here considered.

Report on Experiments with the Hampton Court Maze.—H. A. RUGER.

A preliminary report of experiments now in progress, to be reported in full at a later date.

Completion Tests with Public-School Children.—M. R. TRABUE.

After testing over six thousand public-school children with a series of fifty-six mutilated sentences, twenty-four of the sentences were selected to serve as a language scale.¹

Sentences were used rather than paragraphs, because it was believed that the paragraph was too large a unit of thought for the

¹ Cf. M. R. Trabue: "Some Results of a Graded Series of Completion Tests." *School and Society*, Vol. I., pages 537-540.

child in the lower grades to handle successfully. The mental labor required of the teacher in evaluating paragraph completions has heretofore kept teachers from making much use of completion tests. The short sentence units here presented to the child for completion and to the teacher for evaluation seemed to eliminate many of the objections which have been brought against the use of completion tests with public-school children.

Since it was desired to test the child's ability to think about and to use intelligently the ordinary words of the English language, the subject-matter of the sentences was taken from general experience and human relations, avoiding in so far as possible the more specialized fields of knowledge.

An elaborate scheme of evaluated completions was at first followed in scoring each sentence, giving five points score to each perfectly completed sentence, four points to each sentence only slightly imperfect, three points to each sentence containing a more serious error, two points to a very imperfectly completed sentence, and one point if the sentence showed any evidence whatever that the child had understood the printed words. The present scheme of scoring gives two points score where five were originally given, one point where four or three were given and no score at all where two or one were at first assigned.

That the present method of scoring is practically as reliable as the older more elaborate method is indicated by the fact that the fifty-six sentences tend to hold their relative rank regardless of which method is used. The rank obtained by testing fifty-seven pupils in the last half of the eighth grade showed a correlation (Spearman's method of squared differences) of .965 with the rank obtained from testing thirty-four pupils in the first half of the sixth grade, when the older method of scoring was employed, while with the newer method of scoring, $r = .9623$. The ranks obtained by the two methods from the fifty-seven pupils in the eighth grade gave a correlation of .9823, and with the thirty-four pupils in the sixth grade, $r = .9768$. Such small differences between the two methods of scoring the tests were not thought sufficient to warrant the enormous amount of additional labor required to score the sentences by the old, more elaborate scheme.

Since each of the twenty-four sentences of Language Scale *A* may receive two points credit, the maximum score is forty-eight points. The average scores in Language Scale *A* of over five thousand children in three different school systems are given below by grades, the P.E. of any grade average being 3.5 points.

School Grade ..	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Av. Score	3.4	7.7	12.1	16.2	19.5	22.5	26.4	28.9	32.9	34.8	37.3

An Experimental Study in Values.—MARK A. MAY.

The work here reported represents a preliminary attempt to apply the order of merit method to the study of "religious values." The materials used for the experiment were twenty-five religious situations, the most of which are found in any order of worship of Protestant churches. The subjects were asked to imagine themselves in each of these situations, and then to arrange them in the order of their merit for pure pleasure. After this arrangement had been made, they were asked to arrange the same material a second time for its religious value—*religious value* being defined as "communion with God." Then still a third arrangement was made for moral value. Fifty students in Union Theological Seminary judged this material in each of these three ways.

The most significant features of the investigation may be summed up under the following heads:

1. The fact that fifty judges judged these situations without complaining that it could not be done would seem to indicate that if a sufficient number of competent judges could be obtained it would be possible to derive a scale for measuring the relative values of religious and moral situations.

2. By having the same material judged according to three different criteria we are able to analyze a given situation and to determine its moral, religious, and esthetic value.

3. The experiment shows that on the whole this is a very satisfactory method of defining and bringing out of obscurity what we mean when we talk in such vague terms about the "values of life."

The Study of Foreign Languages in Relation to Standing in Psychology.—WILL S. MONROE.

A preliminary report of work now in progress.

Scientific Method in the Interpretation of Dreams.—LYDIARD H. HORTON.

The question here considered is whether dream interpretations shall represent the state of the dreamer's mind or the mere fancy of the interpreter. Criticism is directed at the aprioristic and oftentimes hit-or-miss practises of the Vienna and Zürich schools of psychoanalysis.

For illustration, a simple dream is interpreted by the current methods of psychoanalysts. First, according to the "reductive method" of Freud, it is made out as symbolizing an infantile and sexual wish-fulfilment, expressing a "*voyeur*" component of the *Libido*. Secondly, the dream is re-interpreted by Jung's "constructive method," so as to gloss over the gross Freudian phallicism.

It is now made to mean that the dreamer is impelled to higher biological duties, namely, marriage and professional success.

The plausibility of these interpretations once shown, they are next proved wide of the mark, by the fact that the dream can be more adequately accounted for in another way, *i. e.*, by a proposed "reconstitutive method."

This method aims to "reconstitute" the dream-thought (both imaged and imageless) by tracing the wave of nervous excitation from its origin in a primary stimulus-idea through a specific apperception-mass into a derived system of secondary images which form the manifest dream content. The derivation of the latter must be concretely demonstrated in the "settings of ideas,"—not assumed.

The reconstitution of this particular dream illustrates the *reductio ad absurdum* of the two previous psychoanalytic "solutions." The fact that either of them would apparently have satisfied the demands of the problem is an artifact evolved by the interpreter's confabulations and forcing of analogy. It is a matter of "will to interpret."

The Freudian technique is unsound in so far as it fails to consider the meaning of dream-items as determined by "unconscious settings of ideas."

The study of individual differences in dreams indicates that the supposed "language of dreams" is an artifact; that the psychic "censorship" is only an occasional phenomenon. The reconstitutive method brings into relief the trial-and-error character of the dreaming process, depicting the organism as attempting a physiological resolution of persisting and unadjusted stimulus-ideas. The images evoked in the dream have the psychological character of "trial percepts" or tentative apperceptions.

Sleep favors apperceptive errors, hence the inconsistency and bizarrerie of the dream. The significance of a dream can be found only by reconstituting it from the above standpoint.

Studies in Recall.—GARY C. MYERS.

Two experiments in progress were reported, Reconstructive Recall and Confusion in Recall. In the first experiment the subjects daily tried to recall as much as possible of certain selections which they once knew very well, but which they had forgotten wholly or in part. The subjects wrote introspections. Several times as much was reconstructed at the end of a few weeks as the amount reproduced in the first recall. Interesting chains of associations were obvious. Paragraphs and sentences mutilated or entire were recalled and improved upon or linked with others in subsequent recalls.

The results thus far endorse the common statement of psychologists, "We never wholly forget," and they emphasize the importance of the most favorable situations to elicit the learner's reproduction. They suggest a prominent existence of subliminal association, and, most of all, a serious neglect in almost all memory experiments to consider the time for recall as a factor in measuring memory, and, in case of group experiments, to provide any time limit for recall.

In the second study the purpose is to determine the increase of confusion with the increase of retention interval. The following test is used.

273	732	372	723
beat	tow	desert	waist
statue	meat	week	pear
dessert	waste	stake	toe
steak	kernel	beet	meet
weak	pair	statute	colonel

The subjects are told to study the materials so as to be able to reproduce the correct words under their respective numbers. A hundred subjects, tested individually, were told to study until they were sure they could give perfect reproduction. Their times for learning and for recall were kept. They were surprised by a request for a second recall after three weeks. Five minutes for learning and 3 minutes for recall were allowed 278 public-school children tested. They were surprised by a second recall after one day and a third recall 5 weeks later.

Partial results of the latter group only were presented. The average percentage of the correct words and figures that are recalled in correct order is used to measure the amount of absence of confusion. By the 159 boys and girls of the high school the average per cent. for words in immediate recall is 71.3 and after one day 60.9. For figures the percentages are 74.4 and 70.4. By the eighth grade the records are, Words 78.8 and 62.9; figures 73.8 and 51.5. Seventh grade, words 56.1 and 39.7; figures 53.3 and 27.4. Sixth grade, words 60.0 and 43.7, figures 61.9 and 49.6. This shows confusion in the first recall and a very pronounced increase in confusion after one day.

A. T. POFFENBERGER, JR.,
Secretary.

REVIEWS AND ABSTRACTS OF LITERATURE

The Genetic Aspects of Consonance and Dissonance. HENRY T. MOORE.
Psychological Monograph, Vol. XVII., No. 2, 1914. Pp. 80.

Facts do not always lead and give direction to theory. This is evident from a survey of various of the recent studies of consonance. In judgments of preference in the comparison of different intervals subjects may be instructed to eliminate affective qualities and to note but one cognitive quality such as unitariness, to judge on the basis of several criteria, or they may merely be asked for preferences. Under the last two conditions there can be no guarantee that different observers adopt the same basis for judgment, or that the same individual judges throughout by the same standard. Yet all these methods have been followed in recent studies in the United States and England.

Certain experimenters, *e. g.*, Meyer and Valentine, have shown that an observer's attitude toward musical intervals, especially unfamiliar ones, changes considerably with practise in the hearing of such intervals. These facts, in connection with certain well-known changes in preference for intervals in musical practise, have led Moore to attack the problem of consonance and dissonance from the genetic point of view. After a brief statement of leading theories of consonance, including the author's genetic theory, historical evidence of such changes in preference is examined. With the latter we are not here concerned, as the fact of such changes in mere preference is not disputed to-day by any one. One feels that some of the theories reviewed do not receive full justice—though probably as much justice as they have received in other reviews in America,—but this is likely due mainly to the lack of space. For example, Krueger's theory is presented only in its negative aspects,—its treatment of the causes of dissonance. English-speaking investigators, however, may well be grateful for the clear statement of theories for which they would otherwise have to go over hundreds of pages of German literature.

We may also pass over the author's statement of his genetic theory as it is mainly a statement of facts and not of principles of explanation.

The experimental part is divided into *preliminary* and *final* experiments. We are told that "the intention of the preliminary experiment was twofold, to find in the case of each subject his degree of consistency and his degree of consonance" (p. 41). This is done by the method of "paired comparisons," applied to 19 resolutions. A resolution is "the dominant seventh plus the chord into which it resolves." Two seconds were allowed for the dominant seventh and three for the following chord in each resolution. A cabinet organ of tempered scale, made by Estey Organ Company, Boston, was used. Nine subjects served in the experiment, of whose musical antecedents nothing is said excepting casually. Two of the subjects are violinists, one of them ranking highest in the "preference" for dissonances. A third subject was Dr. Langfeld of the Harvard laboratory. These nine subjects are ranked as to consistency and also as to preference for dissonances.

In the *final* experiments each hour of experimentation was begun by

obtaining a series of standard judgments, by the method of paired comparisons, the subject stating not only preference, but also degree of preference on a scale of five, *A, B, C, D, E*; "each interval, played consecutively in a passage of seven parallels, with *c', d', e', f', d', c'* as the fundamentals, was compared with each other one played similarly (p. 51). Four intervals only—two consonances, the fifth and the third; and two dissonances, the major and minor seventh—were thus studied. The ninth was added to give a wider range of comparison. After obtaining the standard table of judgments a certain interval was studied for the day. If the seventh, *e. g.*, was being considered, the experimenter "proceeded to play a passage of parallel sevenths, sustaining each interval exactly one minute." This was continued for five minutes, five intervals thus being played. New judgments of preference between the interval in question and each of the other four were then taken, two judgments in reverse order being secured for each pair of intervals. Other introspections—than those of preference and degree—were not required, as Mr. Moore supposed from Pear experiments that other introspections would result in a reduction of the consistency. A repetition of this procedure showed a gain in preference for the dissonant and a loss for the consonant intervals. This was the method of "prolongation." The method of repetition gave similar results. It differed from the former "in that each period, three minutes in this case, was occupied not with sustaining intervals, but with playing repeatedly an entire melody in parallel thirds, fifths, minor or major sevenths, as the case might be. The melody used was, with the exception of one note, within compass of a sixth, so that the same notes recurred with great frequency" (p. 54).

The general results show that the "third loses rapidly, the minor seventh gains equally rapidly, the fifth maintains a fairly constant level, the major seventh rises in value, but less rapidly than the minor seventh" (p. 57). These results agree significantly with those which Valentine obtained from adults and from girls between the ages of nine and fourteen years. They agree with musical history in favoring the assumption "that the degree of consonance increases as a result of the frequency with which an interval is heard" (p. 62). The affective value of the intervals also changes. Affective value increases as we pass from extreme to slight dissonance, the bare consonance possessing the highest degree of pleasantness. Pleasantness then declines "until we reach the point where the interval gives the effect of a true unison, intensified dynamically; at this point follows a second affective rise, but by no means so great as that which marks the transition from dissonance to consonance" (p. 62). For this last point insufficient evidence is yet at hand.

But what does the author mean by consonance? "The phenomenon of consonance, if the theory here advanced is right, is a special case of the adjustment of the inner to the outer relations. The nervous system, by a form of activity that tends with each repetition to become more simple and economical, gradually affects the synthesis of more complex physical relations" (p. 62). That the author has in mind for consonance something different from the affective tone of consciousness is evident in the sentence

following that just quoted, where the affective aspect is considered. The following quotations show that a similar distinction is in mind: "As a decided dissonance it is essentially unpleasant; as a mild dissonance it is pleasant according to the context" (pp. 38, 39). "This is by no means an identification of consonance with the inherent pleasantness of an interval," etc. (pp. 50, 51). Sentences of this kind occur here and there throughout the monograph, and the author not infrequently points out that the affective value of intervals falls with increase of "fusion or synthesis" beyond a certain point of consonance (*e. g.*, p. 50), yet a critical examination of the work before us shows a surprising confusion of terms whose meanings should be kept clearly in mind by both experimenter and subjects. In the first place, the author examines the history of musical preferences for intervals in the final chords in cadences, and from these "preferences" he draws conclusions as to changes with experience in the consonance of intervals. This is precisely where Stumpf, and in fact most authorities, would object most strenuously. Yet our author seems to accept, in the main, Stumpf's conception of consonance. Note the following: "Nevertheless, in spite of considerable disagreement among various authorities as to the exact meaning of tonal fusion, it is quite generally agreed that Stumpf has pointed the way to proper treatment of the problem" (p. 13). The author, let it be noted, does *not* accept Stumpf's arbitrary distinction between consonance and concordance. That he is definitely examining the (or an?) affective aspect in the historical sketch is noted in the statement of purpose: "Now the facts with which we are concerned are of two kinds, those derived from the actual development of *musical feeling*, and those derived from experiments designed to test the conditions of consonance."¹

A most careful examination has failed to reveal to the reviewer any evidence as to what was to be the basis of the subjects' *preferences* in the experiments. No instructions on this matter seem to have been given—each was left to follow his own idea, and what that was we do not know. Some of the subjects are apparently psychologists, some are musicians, and of most of them we have nothing but the names. Can preferences thus derived be of any value to science? Experiments by the reviewer, recently carried on in the University of Chicago, show, as do also those of Pear, that even experienced musicians and psychologists have extreme difficulty in leaving out of consideration in their judgments of preference the affective tone of intervals. This is true even when such subjects are explicitly instructed not only to disregard the affective tone, but to base judgment on only *one* of the three or more cognitive criteria. No mention of such difficulties is found in the monograph before us.

Mr. Malmberg has recently completed in the Iowa laboratory a study of consonance in which the subjects were asked to base their judgments upon three criteria: "(1) Blending, a tendency to belong together or agree; (2) Smoothness, relative freedom from beats; (3) Purity, relative

¹ Page 20, italics the reviewer's.

absence of richness."² Such a method has certainly also its pitfalls. We await with interest Mr. Malmburg's monograph.

JOSEPH PETERSON.

UNIVERSITY OF UTAH.

Theodor Lipps's Neuere Urtheilslehre. GEORG ANSCHÜTZ. Leipzig: W. Engelmann, 1913. Pp. 175.

The author brings together the most recent utterances of Lipps on judgment and closely related topics. This seems desirable from the fact that Lipps's "Logik" has not been revised since its first appearance in 1893, although the author's views have greatly changed, particularly since the appearance of Husserl's "Logische Untersuchungen." The material has been collected from the minor writings, lectures, and occasional remarks by Lipps, together with certain additions by the author that give a logical connection to the whole. It is a drawback that the sources of the different statements are not indicated, and that no distinction is made between the theory of Lipps and the logical supplements.

The fundamental assumptions of the work are the existence of the object and the ego as distinct, but mutually interacting. The forces that direct the interaction and so determine the nature of consciousness and of the universe are demands (*Forderungen*) which objects make on the ego and the ego in certain cases may make on other egos. They are different in that the demands of objects can not be changed or annulled by other demands while the demands of men can. The mental states that result from the fundamental forces are sensation, thought, and apperception. Thought is as different from sensation as higher is from lower. In it, too, the ego is immediately appreciated, in distinction from the object, while in sensation all tend to be confused. Apperception gives order to the whole, it seems to follow a pattern, but in reality is largely original.

The highest of the various forms of mental action is the judgment. In it the claims of the object are recognized, and after preliminary alternation from one to the other, which constitutes doubt, one is recognized and the others are excluded. The object is ordinarily the subject, the demand that it makes the predicate, and the recognition that the object demands something, the predicate. The latter parts of the book are devoted to indicating the ways in which the various opposing demands that meet in the judgment constitute the nature of the universe. In the judgment the object with its demands and the pure ego find their final union and harmonization. Object and ego become but two sides of the unity, but these two sides never disappear. As the plot is revealed we find that all realities dissolve into these demands and their mutual reconciliation. From them grows the complete interrelationship and net-like web of things that really are.

The details of the exposition could only be made clear in brief space to one already familiar with the doctrines of Lipps, and he would not need them. The book in itself is little more than an outline and further con-

² Furnished to the reviewer in conversation. Mr. Malmburg's study has not yet appeared from the press, I believe.

densation is not possible. It may be recommended as containing the essentials of the position of the Lipps school in relatively brief compass.

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JOURNALS AND NEW BOOKS

AMERICAN JOURNAL OF PSYCHOLOGY. July, 1915. *An Experimental Analysis of the Process of Recognizing* (pp. 313-387): ELIZABETH L. WOODS. - Visual, auditory, tactual, and olfactory stimuli were presented to be recognized. An "initial," "intermediate," and "final" level of recognitive experience was found. Imagery becomes less important as recognition progresses. Recognition is described as "an orderly procession of mental events—from clear percept through appropriate reaction to attention-shift—under the direction of the *Aufgabe* or the *Einstellung* to recognize." Summary of theories and classified bibliography. *Certain Social Aspects of Invention* (pp. 388-416): AMY E. TANNER. - Several great inventions are discussed, which show that there often is little relation between the value of an invention and the ability involved in making it, the motives of inventors are very much alike, their methods are very different. *Geotropism in Animals* (pp. 417-427): SAKYO KANDA. - A review of the facts of geotropism is given from the unicellular organism to man. The physiology of animals has much to do with orientation to gravity, consciousness very little. Selected bibliography. *A Comparison of Reflex Thresholds with Sensory Thresholds—The Relations of this Comparison to the Problem of Attention* (pp. 428-437): E. G. MARTIN, B. D. PAUL, E. S. WELLS. - The value of the sensory threshold depends on the state of the higher centers. *The Freudian Methods Applied to Anger* (pp. 438-443): G. STANLEY HALL. - Anger like sex is an important part of the human psyche. The Freudian movement opens a larger field than that of sex in that it calls our attention to the feelings. *Minor Studies from the Psychological Laboratory of Cornell University. On the Variation with Temperature of the Pitch of Whistles and Variators* (pp. 444-449): G. J. RICH. - Whistles and variators vary in frequency with changes in temperature. Formulæ for corrections are given. *Visual Quality as a Determinant of Clearness* (pp. 449-463): J. S. SMITH. - There is no one hue that makes a special appeal to attention. *A Preliminary Study of Vowel Qualities* (pp. 453-456): J. D. MODELL and G. J. RICH. - Vocality can be heard in tones. *A Bibliography of Rhythm* (pp. 457-459): CHRISTIAN A. RUCHMICH. - Supplementary list. *Book Reviews* (460-468). Baldwin Spencer. *Native Tribes of the Northern Territory of Australia*: E. B. T. P. R. T. Guordon, *The Khasis*: E. B. T. C. Forsyth, *Orchestration*: E. B. T. R. M. Ogden, *An Introduction to General Psychology*: CHRISTIAN A. RUCHMICH. *Hugo Muensterberg, Psychology, General and Applied*: CHRISTIAN A. RUCHMICH. Mary Whiton Calkins, *A First Book in Psychology*: CHRISTIAN A. RUCHMICH. Paul Levy, *The Rational Education of the Will*: RAYMOND H. WHEELER. Alfred Binet and Th. Simon,

Mentally Defective Children: FLORENCE MATEER. *Book Notes* (pp. 469-471). Nathan A. Harvey, *The Feelings of Man, their Nature, Function and Interpretation*. Benjamin Dumville, *The Elements of Psychology*. William Stern, *The Psychological Methods of Testing Intelligence*. W. H. Winch, *Children's Perceptions*. George Trumbull Ladd, *What Ought I to Know?* George Trumbull Ladd, *What Should I Believe?* E. R. Murray, *Froebel as a Pioneer in Modern Psychology*. Theodor Ziehen, *Die Grundlagen der Psychologie*. Truman Lee Kelley, *Educational Guidance*. Charles Herbert Elliot, *Variation in the Achievements of Pupils*. Woodbridge Riley, *American Thought from Puritanism to Pragmatism*. Mrs. C. A. F. Rhys Davids, *Buddhist Psychology*. Von N. Braunshausen, *Einführung in die Experimentelle Psychologie*. *Necrology*.—Stephan Witasek and Ernst Meumann.

Derwenen, J. M. *Naturphilosophie*. Berlin: Verlag von B. G. Teubner. 1915. Pp. 112.

Ladd, George Trumbull. *What May I Hope? An Inquiry into the Sources and Reasonableness of the Hopes of Humanity, Especially the Social and Religious*. New York: Longmans, Green, and Company. 1915. Pp. xvi + 310. \$1.50.

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Taussig, F. W. *Inventors and Money-Makers*. New York: The Macmillan Company. 1915. Pp. ix + 138. \$1.

NOTES AND NEWS

THE first meeting of the thirty-seventh session of the Aristotelian Society was held on November 1, 1915. The inaugural address on "The Moment of Experience" was delivered by the president, Dr. H. Wildon Carr. The moment of experience, he maintained, is the moment in which reality is sensed, the moment in which the mind is in direct and immediate relation to its object. The problem in regard to it is twofold. In the first place the moment has duration and its duration is measurable; it therefore includes the relation of before and after, yet its whole content is a present without internal distinction, although externally distinguished from the remembered past and the imagined future. In the second place its content has the characteristic quality of being a sense-datum and consequently a question arises as to the status of sense-data. Is the essential character of sense-data something which objectively belongs to them, or is it constituted by the mental act in the moment of experience? The problem was illustrated by the fact that the sensation of a rapid movement, such as that of a shooting star, is experienced as a continuous line. It was contended that the usual psychological explanations were based on the assumption that what is mathematically past can not be present sensation

unless some contrivance exists, it may be of a physiological or it may be of a psychological nature, which practically produces illusion. It was argued against this that movement or change is directly sensed, and that this is only possible if what is mathematically past and what is mathematically future are actually present to the mind, and it was claimed that as a simple fact both are present. What, then, is the relation of this mathematical time to psychological duration? According to one view the mathematical succession of instants, which are points, is the reality, and the moment of experience is the more or less successful effort of the mind to grasp or apprehend it. Such a view would involve the contradiction that present reality is a point without duration, a limit between a past and future, between what is no more and what is not yet. According to the other view the psychological duration is the reality and the mathematical series a scheme or diagram by which the reality is imagined or thought. It was argued that the concept of a moment of experience as a concrete universal concept, implied the original synthesis of the contradictions past and future in the concept of a real present. And that further these abstract contradictions, past and future, synthesized in a present moment, became in the concept of activity an organic unity, and, therefore, reality in a higher degree. In the moment of experience the objects present to the mind are sense-data. According to one view this character of the object is not due to its presence in the moment of experience, but the moment of experience is a present moment because the sense-datum is then the mind's object. Sense-data in this view are non-mental or physical, the constituents out of which the mind constructs its concept of the external world. Against this it was argued that such a view failed to explain the special privilege which attaches to the moment of experience over all other moments. On the other hand if the moment of experience is the moment of activity, there is no mystery in its privilege, it is the moment of "attention to life." Finally it was argued that the highest concept of reality is the concept of life, and that the fundamental distinction in philosophy is not the distinction between mind and matter, but between life and consciousness. The task of philosophy is to make explicit the relation between them.

At Columbia University the following changes in the department of philosophy have been made: Dr. George Peckham has been advanced from assistant to lecturer, Rev. N. T. Boggs has been appointed lecturer, and Mr. Walter Veazie has been appointed assistant.

PROFESSOR W. C. RUEDIGER has been appointed director of the newly authorized summer school to be held at George Washington University, Washington, D. C. The school for 1916 will begin June 26, and continue for six weeks.

MR. ALFRED WILLIAM BENN, author of "The Greek Philosophers" and "History of English Rationalism in the Nineteenth Century" has recently died at the age of seventy-two years.

PROFESSOR ALFRED H. LLOYD, of the department of philosophy, has been appointed to succeed the late Professor Karl E. Guthe as dean of the University of Michigan Graduate School.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

COMPARATIVE STUDY OF SPINOZA AND NEO-REALISM AS INDICATED IN HOLT'S "CONCEPT OF CONSCIOUSNESS"

III

CONSCIOUSNESS

Holt's concept of consciousness: Cross-sections and their relation to the whole of which they are parts; consciousness a cross-section—Holt's psycho-physical parallelism—Spinoza's concept of consciousness—Spinoza's radical empiricism.

Such a thing, then, as a tree for Spinoza is a non-mental, non-material substance brought to its present condition by an infinite series of interwoven causes, and it is definable in terms of these causes. For Holt, the tree is a complication of neutral logical entities, geometrical for the most part, acted upon by a series of logical propositions. It is perhaps definable in terms of geometrical planes, lines, physical laws of cohesion, etc. In fact, the full philosophic flavor of antiquity may be preserved and enriched with new meaning by implying that for Holt the tree is a plane-tree. But suppose I close my eyes and think of the tree—of what stuff is my thought-tree made? Where does the thought-tree come from, and why?

The intent of Holt's work is to give an answer to these questions in a logical account of the origin of consciousness.²³ "This means," writes Holt, "the framing of a set of terms and propositions from which a system is deducible that contains such an entity, or class of entities, as we familiarly know under the name of consciousness, or mind."²⁴ In such a presentation, it is not necessary to begin with the simplest terms of the realm of being, but merely with those entities one degree simpler than consciousness, as ranked in the neutral hierarchy. Such entities, it may be remembered, were the

²³ Holt, pages 166-184.

²⁴ *Ibid.*, page 166.

so-called physical objects, organic and inorganic. Of course, such entities are not understood to be "physical" in any sense contradistinguished from "mental" which would be a begging of the question in favor of "rank materialism." A purely neutral universe, made up of just such terms and propositions as our tree and endowed with those chemical complications of terms and laws known as organic life, must be kept in mind.

Although its relevancy is not immediately obvious, the first thing to be considered are the certain parts of these neutral entities which we call cross-sections.²⁵ The class of prime numbers in the numerical system, the portion of a mountain-side cut by a vertical plane of any or no thickness, the number of rainy days in every leap-year, are cross-sections of the inorganic world. The portion of a tree cut by a horizontal plane, the black hairs on a coach-dog, all wooden-legged people who ride in jitney-busses, or any of the romantic abstractions from human life to be found in statistical charts constitute cross-sections of the organic world. Such cross-sections of nature, humanity, or what not, although a part of the whole, make up a part defined by a law that is *not* the law which vitally defines the whole. That is, a series of highly complicated laws and terms, involving physical and chemical principles, make up the vital definition of a tree; whereas a simple geometrical proposition such as "Let a plane of no thickness pass vertically through the tree from topmost leaf to root" constitutes the law that creates the cross-section, a law that is entirely alien to the being or growth of the tree. Just so, the laws that create statistical charts out of the vastitude of human complexities and relationships are motivated by—I often wonder what these charts *are* motivated by! Now it will be noted that these cross-sections are usually of admittedly neutral stuff, stuff that all but chronic materialists and idealists would cheerfully concede to be neutral. The *shape* of clouds, the series of contours in a cross-section of no thickness passing through our tree are obviously neither "mental" nor "material." Before disclosing the meaning of this apparent digression, it must finally be observed that some cross-sections, the greater number of statistical charts, for example, are insignificant not only for the whole of which they are a part, but for anything at all.

Other cross-sections, however—and here we open the bag and look at the cat—are significant in and for a more complex and inclusive whole. Thus, man, in our survey of the neutral hierarchy, was ranked as more complex than fish, and included in his nature—along with a good deal more—all the entities and propositions that go into the making of fish. Now then, the number of trout to be

²⁵ *Ibid.*, page 168.

found in a cross-section of a brook has significance and considerable significance for that inclusive complexity designated as an active member of a fishing-club. Similarly, a cross-section defined by the searchlight of a ship throughout a night is valued by the pilot. And, strange to say, in our present search for a proposition from which we can deduce consciousness from the neutral realm of "physical" objects, we find that the law which defines a certain cross-section in this "physical" realm has vital significance. The key is found in that cross-section which is defined by the nervous responses of any organism to its environment. Such responses are to be found in the most minute plant-life, and their total forms a neutral cross-section. The *turning* of a plant to the sun, the *intensity* of color which it develops, the *nodding* to the breeze constitute a cross-section from the total life of the plant which is avowedly neutral, and which is governed by laws not vital to the definition of the plant. If these responses are expressed mathematically, of which expression they are easily capable, their neutral character would more readily be revealed. And it is likewise apparent that it is usually the confessedly neutral qualities in the environment to which it responds. The plants, for instance, respond to intensities of light and velocities of air, etc. Moreover such a cross-section, defined by the responses, form for the organism its environment, the only environment which *for it* has existence. In the organism styled man, this cross-section, composed of neutral objects to which our nervous system responds, corresponds exactly with the list of objects of which we say we are "conscious." Thus consciousness can be defined deductively from neutral substances: Certain complicated aggregates of neutral entities are "physical" bodies; still more complicated aggregates are defined by the nervous responses in these "physical bodies"; this latter complicated "manifold" (cross-section) we call "mental." The individual terms of this environmental cross-section styled "mind" we call sensations, perceptions, etc. "In fine, the consciousness that depends on any given living organism is the sum total of all neutral entities to which that living organism [itself a complex of neutral entities] responds."²⁶

By means of the foregoing account of consciousness, if I have restated it correctly, Holt believes that he has deduced the mental and the physical (as distinguished from the mental) from a given neutral without resorting to any pre-assumed "mental" or "physical," and above all, without introducing his pet abhorrence—psycho-physical parallelism.²⁷ Holt justly berates the crude symbolism (the shield with two sides, etc.) and muddled mechanism

²⁶ *Ibid.*, page 184.

²⁷ *Ibid.*, page 309.

that passes for psychophysical parallelism; and yet, as I now propose to show, he himself has in no way escaped it. In attempting to bar this iniquitous intruder from a philosophy of consciousness, it is necessary to watch not only the main portals, but the cellar-door as well, and it appears that Holt has allowed the rascal to slip in unawares. Let us see if we can not detect his entrance.

According to Holt, I am a specific neutral entity, and the tree just without my window is another neutral entity. I look at the tree, and the looking amounts, on my part, to certain specific nervous responses to the tree. By so doing, I in no way affect the neutrality of the tree, and the tree in no way affects my neutrality; and yet these responses have converted the tree into a "psychic" thing and myself into a "conscious" thing. Nothing has modified us; we have not modified each other; and yet we have become different—call the difference one of relationship or what not. Let me put the operation into Holt's favorite logical terms:

Let (a, b, c, d) be a collection of neutral entities.

Let (m, n, o, p) be another collection of neutral entities.

Let (R) be the specific response of (m, n, o, p) to (a, b, c, d) .

Then (a, b, c, d) becomes the body (Class B) of which (m, n, o, p) becomes the mind (Class M).

But the latter, class (M) , is in no way modified or changed by standing in the relation (R) to class (B) . Accordingly, the essential Spinozistic parallelism is reproduced, for the body and mind are not coincident and in no way modify each other as such.

It must be apparent that a mysterious property enters with the response (R) to modify (a, b, c, d) and (m, n, o, p) , changing them into class (B) and class (M) , respectively. But this is against Holt's postulate that all entities are neutral and remain such. Accordingly there is and can be no modification. And if there is no modification, and if the class (B) and class (M) nevertheless exist, and exist without affecting each other, psychophysical parallelism is the fact of the situation, regardless of the name given it.

To return to our specific illustration. If mind and body (with respect to myself and the tree) do not exist before I look at the tree; if my looking at the tree does not affect me as a neutral entity and does not affect the tree as a neutral entity; if, nevertheless, my looking makes a perceiving object of me and a perceived object of the tree, where, logically, can the class mind and class body come from? They can not come from the looking (the response), for by Holt's whole hypothesis, the looking (response) can not modify the neutrality of any neutral object. Clearly the classes mind and body, then, are begged; and they exist without logical reason as parallel classes into which the tree and I become at one and the

same time members of two systems, body and mind. These systems have no influence on each other, yet bear to one another this ineffable and mysterious relationship—"specific response"—which makes one a content of consciousness and the other a seat of consciousness. By openly assuming these classes, without thereby denying the substantial unity of things, Holt would be a professed Spinozist. He seems, however, to have kept his eye so closely upon the response that he allowed mind and body to insinuate themselves, all unnoticed, into the entities responding and being-responded-to. I presume, therefore, it would be fairest to style him an unconscious Spinozist.

For Spinoza, as we have seen, frankly postulates at the beginning thought and extension as two attributes or aspects of a common substance. Accordingly, the nature and origin of the mind—a phrase with which he has named the second book of his "Ethics"—is deducible for Spinoza from this duplex nature of substance. This does not mean for Spinoza any more than for Holt that two distinct entities exist, one mental and one material, and that the first mirrors the second. All substance is one, and as such, is, with reference to "mental" or "material," strictly neutral. "Thinking substance and extended substance are one and the same thing, which is now comprehended through this and now through that attribute. Thus, also, a mode of extension and an idea of that mode are one and the same thing, but expressed in two manners. . . . A circle existing in nature and the idea of an existing circle . . . are one and the same thing."²⁸

In the development of the Spinozistic theory, considerable emphasis must be expected, from the Spinozistic conception of true definition, to be placed upon causation. The extended order is subject to infinite series of causation and changes; and with every change of substance in the attribute of extension proceeds a change in the attribute of thought, for "the order and connection of ideas is the same as the order and connection of things."²⁹ Many parts, fluid, hard, and soft, compose the human body, and are constantly subject to changes and reactions from within and without.³⁰ A change in ideas accompanies each change in the body and environ-

²⁸ "Ethics," Pt. II., Prop. VII., note. A rational explanation of the conflict between this statement of Spinoza—which is in harmony with his conception of the universe as a whole—and the directly contradictory statement, quoted on pages 675-676, above, is that Spinoza when speaking of the difference between an idea and its extended object is speaking in terms of attributes not substance. Whenever anybody becomes specific, he can hardly avoid the same apparent contradiction.

²⁹ *Ibid.*, Pt. II., Prop. VII.

³⁰ *Ibid.*, Pt. II., Post. I.-VI.

ment, precisely as in Holt every nervous reaction must be accompanied by a change in the conscious manifold. Finally, the idea which constitutes the formal being of the mind is the idea of the body as a whole, that is, the mind is the sum of ideas accompanying the sum of the parts composing the human body.³¹

What Spinoza says is that everything appears as mind or matter according to the relationship under which it is conceived. My idea of a room connected causally with my idea of entering a room is "room" under the attribute of thought; the thing "room" connected causally with the thing "my body" which entered it is "room" under the attribute of extension. However, the room and my body, and my idea of the room and body are one and the same in substance. This is no more or less than radical empiricism to which Holt, as we have shown, subscribes.³²

A difference between the two philosophies might be pointed out here in the urging that for Spinoza all things in the "physical" world, including terms of which the human mind is not cognizant (such as the other side of the moon), exist as ideas in the mind of God; while, for Holt, such terms, since they do not exist in any conscious manifold, may be said to have no "mental" existence at all. Such a difference, however, has no bearing on the subject of human consciousness, for it is admittedly related to only such things as lie without human consciousness, and as such are barred *per se* as subjects of discourse.

IV

CONTENTS OF CONSCIOUSNESS

Mind the sum of ideas—Radical empiricism in treatment of secondary qualities; in the treatment of memory which in theory, though not in detail, is similarly explained by Holt and Spinoza—Volition, the mind in action—Personality, the sum of volitions—Table of similarities between Holt and Spinoza, as traced out in this essay.

In considering the content of consciousness, close resemblances and approximate identities characterize the treatment of sensations, perceptions, memories, and purposes; whereas sharp differences arise in the conceptions of values—truth, error, and beauty. The similarities result from the empirical treatment of consciousness, readily deducible from the foregoing discussion, and for the most

³¹ *Ibid.*, Pt. II., Props. VIII. and XV.

³² The analogy between Spinoza and the radical empiricism of James is developed from suggestions in unpublished lectures of Dr. Kallen, of the University of Wisconsin, on Spinoza's and James's discussions of the relation between mind and matter.

part anticipated by the reader. Spinoza's ignorance of exact physiology makes a close intelligent comparison impossible, but the general philosophic position can be satisfactorily outlined. The mind, in the conception of both men, is no single entity, but is the total of ideas at any given time; nor are the ideas static entities capable of being separated from all external relations. They are resultants of a causal chain, themselves constantly productive of new effects, that is, new ideas, so that it can be said that ideas are the mind in the process of thinking.³³ Sensations and perceptions, for Spinoza, are results of "impacts" from the external world upon the brain, carrying with them the inevitable changes in the attribute of thought. For Holt, they are changes in the terms of the conscious manifold, resulting from external impacts upon the nervous organism and the latter's responses. Such terms are neutral and are identical in stuff and content when appearing in the conscious manifold and when appearing in the physical manifold. They are composed of just what they seem to be: the sensation of brightness is bright.³⁴ Similarly, for Spinoza, the idea of brightness *is* bright,³⁵ and the idea of a circle is circular (p. 705, above). With respect to any correspondence of mental content to "reality," Holt maintains there is none—sensations and perceptions *are* reality; and Spinoza would stand with him in declaring that the idea of brightness *is* bright in the attribute of thought, that the brightness itself *is* bright in the attribute of extension, and that the apparent dyad (which his philosophy has been credited with harboring) is in *substance* a monad—is *one*. Ideas are not copies of reality; they are reality in the world of thought, precisely as Holt would say that a perception is reality in the conscious manifold.

Again, on the subject of Memory, to which are allied Imagination and Dreams, the physiology of Spinoza is antiquated, but the position is very similar to empiricism. He held that particles of the body impinge on other particles, and, through habitual series of impacts, create grooves.³⁶ Thus, a month ago I met Jones and borrowed ten dollars from him. The whole transaction as it occurred in the world of extension—seeing Jones, greeting Jones, wheedling Jones, and departing with the banknote—created a series of impacts within the body, particularly within the brain. Of course, a change in my thoughts paralleled every change in my body; and

³³ "Ethics," Part II., Def. III.

³⁴ Holt, pages 212-213.

³⁵ "Ethics," Part II., Prop. XLIII., note. Spinoza does not express himself explicitly on the subject of secondary qualities, and his position must be deduced from his premises on Substance. However, in this reference, he speaks of how "light shows itself and darkness also."

³⁶ *Ibid.*, Part II., Prop. XIII., corollary and note.

the ideas of seeing, greeting, wheedling, and departing followed in the same order as the physical events. To-day I accidentally turn a corner and see Jones again. The initial physical impact is similar to the initial impact of a month ago, and the particles of my body impinge one upon the other along the same groove worn by last month's series of impacts. As the impacts proceed to duplicate their former performance, a duplicate order proceeds in my thoughts. And so, upon seeing Jones, I remember that I greeted, wheedled, and departed with the ten dollars. Every memory, then, involves a condition of the body similar to that in which the event recalled by the memory took place. Accordingly, the exactness of the memory is in ratio to the exactness with which the bodily condition repeats itself.

Holt's conception of the memory is philosophically similar.³⁷ He describes the nervous organization as a highly complicated system of arcs. I meet Jones the first time. Specific nervous responses take place. This series of responses appears in my conscious manifold, and the transaction as an idea orders itself. I meet Jones the second time. The first specific response is similar to the first response of four weeks ago, and the succeeding responses travel along the arc already created. Whereupon, the transaction—save for its relation to events immediately before and after—appears identical in the conscious manifold to the previous one. It can appear no otherwise, for the responses are similar, and the responses define consciousness. And I say that I remember Jones. Again, as in Spinoza, the exactness of the memory depends upon the exactness with which the responses repeat themselves. But time and space enter into memory; are the time and space of memories *real*? Spinoza and Holt would say that they are as real as they appear to be. That is to say, the extension that Jones occupied when I first met him created, through my visual senses, certain impacts or responses. These responses appeared in my conscious manifold, or world of thought, as just so much space. If, a month later, the responses are accurately repeated, again there appears in my conscious manifold just so much space. Usually, of course, past time and distant space are imperfectly repeated in the nervous responses, and appear shortened or telescoped. In sum, the memory of a distant place, in so far as it includes an adequate idea of the intervening space, is that space, that quantity of extension existing in the attribute of thought.

Developing the definition (p. 707, note 33) of an idea as a conception of the mind "formed by the mind by reason of its being a thinking thing," Spinoza held action to be inevitable in the at-

³⁷ Holt, pages 255 *et seq.*

tribute of thought as well as in extension. The whole matter is deducible from Spinoza's description of *Natura Naturans*, the world in action, and his definition of things through their proximate causes. Consequently, ideas that are uncaused or that have no effects, inactive or impassive ideas, are inconceivable; and the will, or, more accurately, any volition is the action of the mind. If a volition is the mind in action, and the mind in action are its ideas, then the ideas desired must always be present with the volitions. And so Spinoza makes it an axiom: "The modes of thinking, such as love, desire, or any other name by which the modifications of the mind are designated, are not granted unless an idea in the same individual is granted of the thing loved, desired, etc."³⁸ Holt, in his interpretation of the world as logic, accords to volition the position and being of a "proposition," a generative law that defines a man's action, precisely as a formula describes a circle.³⁹ A "proposition" then is a "cause" dialectically defined. In the conscious manifold, a proposition acts, that is, causes, exactly as in the physical manifold. "My purpose is at once then the law of my movements; it generates them, and is in itself their sole unity."⁴⁰ Propositions are the mind in action, and such propositions can not by reason of their nature exist without terms. Such is Holt's way of stating the Spinozistic axiom I have just quoted.

It follows, then, that for Spinoza the total of the various modes—loving, hating, etc.,—of the mind's action plus the ideas loved, hated, etc., ("plus" is somewhat inaccurate, since the modes are not to be conceived with the ideas) constitute a personality, and that our conceptions of a central something *behind* our volitions is erroneous.⁴¹ A sum of the terms and propositions in any conscious manifold define, for Holt, the personality of that manifold, whose degree of unity is in constant ratio to the predominance of any single group of propositions and their persistence.⁴² The desire for self-preservation is the most potent of such unifying propositions, and forms the basis of Spinoza's ethical judgments. If the soul is a bundle of desires and their objects, freedom can not be granted as any behind-the-scene liberty, a property of a central will. In fact, Spinoza gives the only intelligent definition of freedom in defining a thing to be free which exists by the mere necessity of its nature and which is determined in its actions by itself alone.⁴³ Conse-

³⁸ "Ethics," Part II., Ax. III.

³⁹ Holt, page 284.

⁴⁰ *Ibid.*, page 287.

⁴¹ See "Ethics," Part V., Preface, for a criticism of the Cartesian "soul" that haunts the pineal gland.

⁴² Holt, page 301.

⁴³ "Ethics," Part I., Def. VII.

quently, a mind, too, is free when its actions are determined by its own nature, that is, when it acts upon its own desires and is free to the extent in which this action is unhampered by external causes. Or, as Holt puts it, a mind is free to the extent that the propositions or laws governing its nature (terms) are unhampered by the action of laws governing terms outside the conscious manifold.⁴⁴

From this point, Spinoza develops his ethical position: analyzing the nature of the emotions; differentiating the mind as passive and as active; revealing the means of converting the passive mind—the mind submissive to its surroundings, at the back of external causes—into the active mind, whereby a man is master of his fate and enjoys that self-expression which Emerson would applaud. Such means amount to an understanding of the environment in terms of its essences and causes, an identification of oneself with *Natura Naturans*. However, it is just at this point that Holt ends his book—and our comparison.

Before considering the emphatic differences, a summary of similarities may be indicated by tabulating the terms and conceptions in Holt and Spinoza which are to a great degree similar, identical, or interchangeable—a summary which this essay has attempted to explicate in some detail:

<i>Spinoza</i>	<i>Holt</i>
Substance	Neutral Stuff
God	The Neutral Mosaic
<i>Natura Naturans</i>	Totality of Propositions
<i>Natura Naturata</i>	Totality of Terms and Relations
Attribute of Extension	Physical Manifold
Attribute of Thought	Mental or Conscious Manifold
Modes	Classes of Terms
Individual Things	Terms
Proximate Causes	Propositions
The necessary correspondence of the Attributes of Substance	Correspondence because of identity save for relation or position
"Adequate idea" through knowledge of cause	Definition by discovery of proposition
"Adequate idea" through knowledge of essence	Exhibition of undefined terms
Idea, as mind in process of acting	Volition as a proposition
Mind as active	Mind governed by propositions acting directly on terms within conscious manifold
Mind as passive	Mind governed by propositions acting on terms without the conscious manifold
Freedom, the acting according to necessity of one's own nature	Freedom, the unhampered acting of propositions within the conscious manifold

⁴⁴ Holt, page 296.

IV

ERROR, BEAUTY, CHANGE

Upon the subject of Error, Spinoza and Holt part ways; and their parting is the natural result of the positions they first assumed. Spinoza, in beginning with a unified Whole, runs upon the inconsistency inevitable to monists who are compelled to establish transcendent harmonies out of disharmonies. For Spinoza, an error or false idea "consists of a privation of knowledge which is involved by inadequate or mutilated or confused ideas."⁴⁵ That is, the totality of what Holt terms the nervous responses are not always present in the conscious manifold, particularly the self-conscious manifold, in the precise order in which they have taken place in the physical manifold. I have placed the explanation in Holt's terminology in order more clearly to show how impossible such a situation would be to Holt. The *sine qua non* of the latter is that since the nervous responses constitute consciousness, consciousness can not differ from the responses. Spinoza's position involves him in a further inconsistency. An inadequacy or confusion can not appear, by definition, in the mind of God (the thought attribute as a whole); and the mind of man, by definition, is comprised in the mind of God. Yet such inadequacies and confusions *do* appear in the mind of man. Holt's position, however, leaves him free from any such tangle. Error he maintains to be (as everything else) just what it is—a clash, a confusion. Not a clash and confusion between responses and consciousness, but between contradictory propositions in the neutral realm itself⁴⁶—or, as Spinoza would term it, a clash of causes in the world of extension. These contradictions exhibit themselves for what they are in the conscious manifold—exhibit themselves, as Spinoza would say, as just such a class of causes in the attribute of thought. Holt's explanation, in a word, could be translated into Spinozistic phraseology, although Spinoza would hold the implied confusion in God to be impossible.

In the differing interpretation of esthetic values, however, the balance of reason seems to tip toward Spinoza. For all his absolute premises, he is an abiding relativist in his human judgments. "Everything, in so far as it is in itself, endeavors to persist in its own being,"⁴⁷ the human mind no less than anything else. Consequently the mind tends to conserve and take pleasure in those things which it imagines conducive to its persistence of being, and suffers

⁴⁵ "Ethics," Part II., Prop. XVII. and Cor. and Prop. XXXV.

⁴⁶ Holt, pages 278-279.

⁴⁷ "Ethics," Part III., Prop. VI.

pain from the opposite things. Love, then, is pleasure accompanied by the idea of the thing that causes it; and hate is pain accompanied by its cause.⁴⁸ Accordingly, all esthetic judgments are relative to the person judging and express a relationship between him and the object judged. There is in Santayana's "Beauty is pleasure objectified" an echo of Spinoza. Holt, however, led on by the logic of his position that things appear as they are, finds tongues literally in trees, books in the running brooks, and painfulness in the Fighting Temeraire.⁴⁹ Such a view, though, is hardly compatible with his insistence that consciousness is dependent upon nervous responses, and that pleasure as a content of consciousness must also be dependent upon these responses, that is, upon the character of the organism that responds.

Finally, the conception of change in Holt may be termed shadowy to say the least. He is conscious of change in the world, is desirous of introducing it into his philosophic description of the world, and is absolutely in need of it to conserve the reality of his explanation of error as a factual contradiction of propositions. Apparently, however, he feels the inadequacy of logic to express this change. This is brought out markedly in his treatment of sensations. Admitting that sensations change, he attempts to account for it by splitting an apparently simple sensation into a group of sensation molecules, or psychic atoms, which, combining in various proportions, produce the desired change.⁵⁰ He feels the inadequacy of this, that it merely resolves the problem of change one step further back, from the sensation to the psychic atom; and although his explanation can not account for it, he declares, "there certainly is such a thing as logical change. There is change or activity in the neutral realm . . . but unfortunately, we know nothing about logical change. If logicians can ever be persuaded that universes of discourse are not necessarily static, we may some day know something about this."⁵¹ This defect dogs Holt in his discussions of propositions and their activity, and has the tendency to make his logical description of the universe a painted ship upon the proverbial painted ocean. Spinoza, however closely he adheres to logic in his expositional methods, avoids any difficulty in the presentation of his universe as active that arises from identifying the logic of his exposition with the stuff of reality.

I have reached the limits allowed me in this paper; and, omitting the repetitions involved in a summary, I take occasion to say, in

⁴⁸ *Ibid.*, Part III., Prop. XIII.

⁴⁹ Holt, page 110.

⁵⁰ *Ibid.*, page 219.

⁵¹ *Ibid.*, page 219.

conclusion, that if the humanism of Spinoza and precision of Holt could be synthesized into a common philosophy, based on their common principles, the structure would in a notable degree be consistent, inclusive, and esthetically admirable. With respect to the common principles which Holt has apparently inherited from Spinoza, it may be considered either a reproach or a glory to philosophy that the theories of one generation are visited upon the third and fourth and that neo-realism is the setting of teeth upon edge.

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A COMMUNICATION IN REGARD TO "THE DISCOVERY OF TIME"

IN his interesting and subtle account of the discovery of time there are one or two subtleties of nature Professor Shotwell, it seems to me, has overlooked, and these oversights unsettle some of his conclusions, incidental conclusions let me add.

"No subtle distillation of animal instinct," he writes,¹ "can give us a 'sense' of that mysterious process in which the flow of a 'future' into a 'past' acquires a meaning. . . . The sense of Time is really a sense of times, and that is not a sense at all, but the slow product of developing intelligence."—When I fall asleep at one hour, bidding myself awake at another, and exactly at that hour I do awake—a time-keeping facility most of us possess in some degree—I do not feel I've been showing a developed intelligence, but in some way I do not understand I have been possessed of what would seem to me a sense of time. One who had been a patient watcher for several weeks at a certain water-hole in East Africa told me a while ago that daily "on the stroke of the clock" the different animal species came to that water-hole for their drink. A company of giraffes was an exception. They came regularly, too, but they came *every five days*. Now between these punctual animals and the human who wakes up at the time he sets himself I wonder if there is in their respective methods of time-keeping no similarity?

That there is similarity if not identity of behavior between the animals and the man who wakes up at the time he is in the habit of waking up, as we say, none will dispute. And it is really to the importance of habit as a time-keeper rather than to that mysterious facility for breaking a habit through time-keeping I would draw attention. Because Professor Shotwell has failed to attend to it he falls into that very common error of describing the savage as an

¹ This JOURNAL, Vol. XII., pages 197 ff.

erratic, wayward, improvident creature, and civilization as a progress from savagery, thanks to its exceeding ability in taking thought for the morrow.

The savage is no less provident than the civilized; his concern for the future is just as compelling. Often indeed one is inclined to think that he takes a great deal more trouble about it, and that the ability to live in the present is a far better criterion of an advanced culture than concern for the future.² But be that as it may, the savage certainly does look after his prospects, his prospects in hunting, in herding, in farming, in child-bearing, in his life after death. The history of his ceremonial life and of his magical practises is one prolonged piece of evidence. It is the direction, not the comprehensiveness or vitality of its forethought, that differentiates primitive from modern culture. The primitive believes that he himself or the gods through his priests can control everything, and so he lets nothing alone,—birth, growth, decay, and death he has to regulate, for men and for animals, and all nature, he feels, is subject to him. It is only in savagery that nature is truly the servant of man, the slave of his will.

This will expresses itself in one way, ultimately in one way only, in the endeavor to keep nature and man unchanged or changing only in set, familiar ways. Here is the underlying reason why primitive culture has, as Professor Shotwell has pointed out, a calendar and not a chronology. A calendar is a recognition of recurrence, a chronology, a recognition of change.

And here, too, lies the explanation of the seeming improvidence of the savage. If to-morrow is to be, so far as he can make it, and remember, he believes he can so make it, like to-day and yesterday, why indeed "worry"? It is not because to-morrow has not yet come that he declines to worry about it, as it seems to Professor Shotwell and others, but because he knows when it does come there will be nothing in it to worry him. In his great providence he has "fixed that." And he worries no more about it than the giraffe who travels every fifth day to his water-hole. Dry up that immemorially filled hole, however, or introduce some innovation of custom into the life of the savage, and signs of "worry" will most certainly appear.

And so, I take it, a culture is to be gauged not by the degree of worry about where the next meal is to come from, but by the degree of worry caused by the prospect of having two meals or four, instead of three. In other words, adaptability rather than forethought is the criterion of culture.

² A point of view, one is well aware, that will find scant sufferance in a Christian and capitalistic society where Heaven and interest are held to be incontrovertibly the rewards of abstinence.

And so, too, the existence of a calendar is no criterion of progress. When Professor Shotwell states that the calendar begins with farming he must be referring to a written or recorded calendar. One might as well say that speaking begins with writing. Writing draws attention to language, and a recorded calendar no doubt draws attention to time-keeping, but the calendar of the animal world is none the less a calendar because it is embodied only in animal habits. Granted then that the lower animals keep a calendar, their human hunters and trappers must certainly in connection with them at least keep a calendar, a calendar in respect alike to their pursuit and to their reproduction. The theory and practise of the open season and the closed form programmes not entirely modern. Primitive hunters and fishers and herders have a calendar indeed just as well as primitive farmers, only it has been less talked about, we know less about it. We are culturally the descendants of the farmers.

And, however it came about, we are something more. "We have erected a civilization based on dates." This we have done because we have become willing to face the facts of change, to let them escape from our control. Perhaps we are less timid than our neolithic forebears. Or perhaps our will to power has seized merely upon other outlets.

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REVIEWS AND ABSTRACTS OF LITERATURE

American Thought: From Puritanism to Pragmatism. WOODBRIDGE RILEY. New York: Henry Holt and Company. 1915. Pp. viii + 373.

Probably the professor of philosophy is not more addicted than the professors of other things to imagining that a people's preoccupation with his subject is the whole of that people's thinking. Professor Riley's book is an account of American metaphysics, and his description of the earlier part of his subject is one for which a reader should feel greatly indebted. Here, Professor Riley is unusually well informed. As for the later chapters, those on pragmatism and the new realism, probably no one can yet write of these topics in a way to satisfy anybody but the writer himself.

American philosophy began, according to Professor Riley, when the imagination ran in absolutistic grooves, and politics, religion, and metaphysics showed a naïve faith in theories of unconditioned authority and power. Puritanism or Calvinism went along with absolute monarchy, while Deism, which followed, matched up with liberalism in politics. On the whole, American philosophy, in its early stages, is an expostulating foot-note to theology, the protests being directed against innovation on the one hand, and against tradition on the other. One sees with regret

that two of the most gifted of the American philosophers, Samuel Johnson and Jonathan Edwards, men of temperament and imagination, lived too early to have the influence they deserved to have. Mysticism is, as the author indicates, naturally inarticulate and uncongenial to a frontier society beginning to be prosperous, and although exemplified enough in early American life, the sources of it soon ran dry. Orthodoxy was hostile to it, as was the common sense that was encouraged by contact with primitive facts. Quietists were, in a sense, separatists, and "publicly the movement did not spread because it was not a truly social movement." Nevertheless, the early mysticism was not ineffective, see "William Penn's treaty with the Indians, John Woolman's protest against slavery, and the continued agitation of the Society of Friends against militarism from the time of the Revolution to this year's Mohonk Conference."

It is with Deism that the sustained current of American philosophy might be said to begin, though this is a reader's comment. Calvinism was not so much a philosophy as a tradition and a creed. Philosophy began with the capacity for "free thinking," that is, in the reaction against what sounds to-day like theological pessimism. As nature lent herself more and more to the needs of the Colonials, it grew less natural to think of her as a place of penance. Deism expressed the instinct to feel at home in the world, and this sense for nature as akin to man is the burden of Emerson's message and of that of the later idealists.

Philosophy in the northern states has been on the whole idealistic; "but we are not so familiar with the fact that the South has been the opposite in its speculative spirit. Indeed in the generation before Emerson, there was a flourishing school of materialists down the Atlantic coast. Radiating from the Philadelphia Medical School, that influence spread chiefly below Mason and Dixon's line. This would go to explain the peculiarity that Christian Science has found its line of least resistance north of that parallel and its line of greatest resistance south of it. . . . In the North the philosophic succession has been through Emerson and Edwards back to the English Platonists like Cudworth, Norris, and Moore. In the South, that succession has been through Jefferson and Franklin back to the Gallic materialists like the authors of the "System of Nature" and "Man a Machine."

Professor Riley's pages on Franklin, Jefferson, and the French influences are interesting and sympathetic. French philosophy was, however, too unorthodox to survive on colonial soil. "It was one of the difficult tasks in southern educational history to dislodge French philosophy from its academic strongholds in North and South Carolina; it was done by a strong current of Scotch Presbyterianism proceeding from Princeton College southwards. And so it was that after all his endeavors to introduce the philosophical culture of France, the President's plans seem to have met with defeat."

In spite of the great influence of German metaphysics upon academic philosophy in America, Emerson was not greatly indebted to it. He read most of Goethe in the original, but the dialecticians of the Absolute

did not attract him. The prime factor in producing the Emersonian type of mind was British. "It was an Anglo-American environment that was furnished by the Boston of that day. Here two forms of thought led to the transcendental strain: the Irish idealism of George Berkeley, the English idealism of the Cambridge and Oxford Platonists." "But perhaps the greatest obstruction to the free importation of foreign ideas was the servile deference to English judgment and the consequent embargo upon the intellectual goods of other nations. Intellectually New England was as yet a colony of Old England, and the pernicious interdiction of metaphysical trade with other countries still obtained." It was not by way of New England, but of St. Louis, "a booming western city—almost on the borders of civilization—apparently almost wholly occupied with material things" that German idealism made its way into the American imagination.

One of the most important chapters in the story of American philosophy is the reception of Darwinism, impeded by Agassiz and hastened by Asa Gray. Professor Riley writes of it in a clear and interesting way, extending his account so far as to include James Mark Baldwin on the ground of his theory of "Organic Selection."

With the chapters on Modern Idealism and Pragmatism, with notes on the new Realism, we are on more debatable ground where a purely historical treatment is difficult to accomplish. Most readers will object to contrasting Royce and Ladd by means of the titles "Romantic Idealism" and "Idealism and Science," if by that contrast it be meant that Royce's work shows less of the scientific character. The reviewer can not refrain from recalling here the phrase with which William James characterized Ladd's work on "Descriptive Psychology" in his review of that work: "It is hard not as mathematics is hard, but as throwing feathers is hard." If, however, it is meant that Royce is the more adventurous, imaginative, and explicit metaphysician there will be less objection to the contrast in question.

On the matter of pragmatism, Professor Riley does well to distinguish between that of James and that of the Chicago school. The two are indeed so different in spirit that it is misleading to call them both by the same name. To make this difference explicit and intelligible is, however, a task of considerable difficulty and the author is not to be blamed if he has not altogether succeeded.

The omission of the name of Santayana from any review of recent American philosophy must occasion surprise, and in this case, a good deal of regret. So far as it is possible to judge of the writer's philosophical tastes, one would suppose that the work of Santayana would be more congenial than that of any other contemporary thinker.

Professor Riley's subject is a large one, while his book is conveniently small. Nevertheless it might very easily have been made far more useful and somewhat clearer by means of such academic apparatus as dates and exact references. The work is full of tantalizing allusions to books and people about whom one would gladly know more. There is, to be sure, a bibliography at the end, but this by no means takes the place of

bibliographical information in the text. The list of works by James does not include "Essays in Radical Empiricism," particularly important for the writer's purpose, nor does the list of works by Professor Dewey include his very important work on ethics written in collaboration with Professor Tufts.

WENDELL T. BUSH.

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Historical Materialism and the Economics of Karl Marx. **BENEDETTO Croce.** Translated by C. M. MEREDITH. New York: Macmillan Company. 1914.

In these essays Benedetto Croce deals largely with questions of economic theory, which, because of their technical nature, are not of primary interest to the readers of this JOURNAL. Even to professional economists the theories of Croce are of slight importance; they do not pretend to offer an interpretation of what the Marxian economics really was, and are not, therefore, of value from the historical point of view; the work which Croce does undertake, that of determining under what conditions and with what assumptions Marx's theories are thinkable, has been better done by Professor Sombart. When, in the concluding essays, Croce is no longer writing of Marx, but is outlining the theories which he develops later in his "Philosophy of the Practical," he reveals himself as a moral idealist. It is also as a moralist and an idealist that he writes of Marx; and in the process he distorts for his own ends the Marxian economics, introducing, as Marxian, concepts which were entirely foreign to Marx's way of thinking, without being deterred by Marx's explicit statements in "La Misère de la Philosophie," and in the preface to the first volume of "Das Kapital."

The doctrine of historical materialism suffers a complete transformation in the hands of Croce, and appears not as a method of historical interpretation nor as a philosophy of history, but "as a new datum of which the historian becomes conscious." How far this estimate of it is removed from the original categorical formulation of the theory by Marx and Engels, and even from the more modified construction which was put upon it in Engels's later writings, is vaguely noticed by Croce. He admits that he runs the risk of giving to their statements a meaning not historically true, although "theoretically perhaps more acceptable" (p. 79). This sort of allegorical interpretation has a certain value which Croce ingeniously extracts from it; for, since he is to interpret Marx and Engels not in terms of what they wrote, but according to what was "in their inmost thoughts," or "what they would have agreed to as correct if they had had more time," he is free to propound whatever theory may be in accord with his own views, and call it Marxian.

His own views demand that morality be irreducible to economic causes; he therefore denies to historical materialism the quality of a philosophy of history. Economic conditions can not furnish the *final* explanation of "intellectual truth" and of "what is called moral truth." Historical materialism should not be confused with metaphysical materialism, with which it has no real connection—but it even "involves an entire abandonment of all attempt to establish a law of history, to discover a general con-

cept under which all the complex facts of history can be included" (p. 5).

Croce attaches great importance to the assertion that historical materialism is merely a mass of new data, and repeatedly denies that it is a philosophy or a method. He does not, however, deny the importance of the new data, and is even willing to admit that economic conditions are in the final analysis decisive. That is, he admits that historical materialism not only presents a mass of facts, but that it offers a point of view with regard to those facts—namely, that they are the dominating facts, the controlling factors. This point of view once admitted, the contention that historical materialism is not a theory of history nor an historical method loses its force. The limitations upon the theory (which Croce quotes from Labriola, and to which, "for various reasons," he supposes Marx would have agreed) are irrelevant in this connection; if they are just, they serve only to prove that the theory has not mathematical accuracy. That "the historian must render exact and definite in each particular instance that coordination and subordination which is indicated by historical materialism, in general, for the greater number of cases, and approximately" (p. 20) implies a theory and a method as well as limitations upon that theory and that method. More is assumed here that the mere consciousness of a new datum.

HARRIETT BRADLEY.

NEW YORK CITY.

JOURNALS AND NEW BOOKS

MIND. July, 1915. *Alexander Campbell Fraser, 1819-1914* (pp. 289-325): PRINGLE PATTISON.—A biographical sketch of Fraser and an appreciation of his work. "The death of Professor Campbell Fraser in his ninety-sixth year severs the last link which connected our British philosophy of to-day with its own origins in the thirties and forties of the preceding century with Hamilton's attack on the "Philosophy of the Unconditioned," Mill's early essays and the first edition of the *Logic*, and the trenchant idealism of Ferrier." *The Meaning of Causality* (pp. 326-344): J. ELLIS MCTAGGART.—Discusses "what is meant and what should be meant by the word causality.—The question whether causality defined as he shall find reason to define it, does occur in the universe, will not be discussed." At various times seven different characteristics have been considered essential to causality. The article advocates two of these: (1) causality is a relation of determination, and, (2) causality is a relation between realities that exist. Causality may be defined as "a relation of implication between existent realities." *The New Development of Mr. Bradley's Philosophy* (pp. 345-366): F. C. S. SCHILLER.—A satirical analysis of the introduction and concluding chapters of Mr. Bradley's "Essays on Truth and Reality," with the claim that he makes substantial concessions to pragmatism. *Lotze's Relation to Idealism* (pp. 367-385): E. E. THOMAS.—"We may sum up Lotze's position . . . by saying that for him, the real consists of individuals or minds related to one another through

activities dependent upon an order, which is independent of these individuals, as such, and which stands altogether out of the reach of existence and change." DISCUSSIONS: *The Necessity for a Universal in Reasoning* (pp. 386-396): CHAS. A. MERCIER.—A reply to Mr. Shelton's rejoinder. Reasoning does not always consist in bringing a particular instance under a general law. The idea that it does has no basis except an academic tradition. *Elementary Logic* (pp. 397-398): ALFRED SIDGWICK.—Discusses the review by Captain Knox of Sidgwick's "Elementary Logic." CRITICAL NOTICES: Russell, Hon. B., *Scientific Method in Philosophy*: F. C. S. SCHILLER. Galloway, George, *The Philosophy of Religion*: ALLAN MENZIES. Merz, J. T., *A History of European Thought in the Nineteenth Century*, Vol. IV.: A. E. TAYLOR. Rashdall, Hastings, *Is Conscience an Emotion?* Three Lectures on Recent Ethical Theories: L. J. RUSSELL. NEW BOOKS. PHILOSOPHICAL PERIODICALS. NOTES.

REVUE DE METAPHYSIQUE ET DE MORALE. September, 1915. *Allocution au congrès de philosophie mathématique* (pp. 571-580): É. BOUTROUX.—Problems such as that of the nature of truth, the infinite, and the passage from arithmetic to geometry are giving philosophy and mathematics a field in which each is indispensable to the other. *Un fragment inédit de Condorcet* (pp. 581-594): L. CAHEN.—These fragments bear upon two points: the progress toward human brotherhood through a better mutual understanding and respect for all that lives or makes for life. *Remarques sur le Polytélisme* (pp. 595-611): C. BOUGLÉ.—A study from a sociological point of view of the fact that different means may work toward the same ends. *La Science comme instrument vital* (pp. 612-643): D. ROUSTAN.—Life leads us towards truth because truth alone is fruitful by its nature and anything else by accident. To accustom our minds to elevate the useful to the true is perhaps the permanent effort of French philosophy. *Études critiques. L'Œuvre de Louis Couturat*: A. LALANDE. *Questions pratiques. La Guerre et la Démocratie*: G. BELOT. *Supplément*.

- Burns, C. Delisle. *Political Ideals: Their Nature and Development*. London: Oxford University Press. 1915. Pp. 311.
- Cantor, George. *Contributions to the Founding of the Theory of Transfinite Numbers*. Tr. by Philip E. B. Jourdain. Chicago and London: Open Court Publishing Company. 1915. Pp. vii + 211.
- Herrick, C. Judson. *An Introduction to Neurology*. Philadelphia and London: W. B. Saunders Company. 1915. Pp. 355.
- Hubbert, Helen B. *The Effect of Age on Habit Formation in the Albino Rat*. Behavior Monograph, Vol. 2, No. 11. Boston: Henry Holt and Company. 1915. Pp. 55.
- Schopenhauer, Arthur. *The Basis of Morality*. Tr. by Arthur B. Bullock. New York: The Macmillan Company. 1915. Pp. xxviii + 288. \$1.25.
- Walter, J. E. *Subject and Object*. West Newton, Pa.: Johnston and Penney. Pp. 184. \$1.40.

NOTES AND NEWS

The following sessions of the Meeting of the American Psychological Association have been announced: Tuesday morning, December 28, "General Psychology" and "Mental Tests"; Tuesday afternoon, "Opening of Exhibit of New Apparatus and Teaching Materials," "Experimental Psychology," and "Mental Tests"; Wednesday morning, "Discussion on the Relation of Psychology to Science, Philosophy, and Pedagogy in the Academic Curriculum"; Wednesday afternoon, "Discussions and Demonstrations of Laboratory Equipment, Apparatus, and Teaching Material" and the Annual Business Meeting; Wednesday evening, Address of the President on "The Place of the Conditioned-Reflex in Psychology," Thursday morning, "Miscellaneous Papers" and "Animal Psychology"; Thursday afternoon, "Educational Psychology." In addition there will be held in Washington, D. C., a joint session of the Association with Section VIII of the Pan-American Scientific Congress, on Monday, January 3.

THE New York Branch of the American Psychological Association met in conjunction with the Section of Anthropology and Psychology of the New York Academy of Sciences at Columbia University on November 22. The following papers were read: "Some Relations between Memory Span, Attention, Age, and Grade," Mr. C. K. Taylor; "Color Therapy," Dr. T. H. Ames; "Why the Lower Senses Are Unesthetic," Professor H. L. Hollingworth; "A Practise Experiment," Mr. M. J. Van Wagenen.

PROFESSOR GILBERT MURRAY, in his Introduction to his verse translation of the "Alcestis," spoke of an illuminating monograph written by Mr. J. A. K. Thomson. This monograph is now being published by Messrs. George Allen and Unwin under the title of "The Greek Tradition: Essays in the Reconstruction of Ancient Thought." The volume includes essays on "Greek Country Life," "The Springs of Poetry," "Alcestis and Her Hero," and "Greek Simplicity."

The Herbert Spencer Lecture at Oxford University will be delivered by Prof. J. Mark Baldwin, honorary professor of the University of Mexico, on March 15. The subject has not yet been announced.

MR. R. M. MACIVER, formerly lecturer in philosophy at the University of Aberdeen, has been called to a chair of political science in the University of Toronto.

Dr. Joseph E. DeCamp, formerly assistant in psychology at the University of Illinois, has been appointed instructor in psychology at the University of California.

DR. M. T. McCCLURE, formerly instructor in philosophy at Columbia University, has been appointed professor of philosophy at Tulane University.

PROFESSOR E. C. WILM, formerly of Wells College, has been appointed professor of philosophy in Boston University.

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ERRATA

Page 606, lines 13 to 15, read: a certain metabolic or formative routine in the organism, involving the construction of specially resistant germs in some cases, of appropriately reacting nervous and muscular mechanisms in others.

Page 610, third line, for "word" read "world."



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